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Marquette district: notes on Marquette Range. No. 156 1893

Clements, J. Morgan (Julius Morgan), 1869-
[s.l.]: [s.n.], 1893

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U. S. GEOLOGICAL SURVEY
FIELD SECTION BOOK

9-891

Marquette District

J Morgan Clements

1893

LAKE SUPERIOR DIVISION.

INSTRUCTIONS.

1. Ordinarily at least two pages of this book will be devoted to one section. On the left-hand page, place a map of as much of the section as has *actually been seen*. Denote rivers, lakes, marshes, etc., by the usual topographical signs. Denote the ledges of rock, when no structure is made out, by cross-hatching, making the cross-hatching cover as nearly as possible the areas occupied by the exposures. If the rock is a massive one, but still more or less plainly bedded, use the same sign with a dip arrow and number attached, showing the direction and amount of the dip. Denote a shaly or other very plainly bedded ledge by right parallel lines, and a ledge having a secondary structure by wavy parallel lines running in the direction of the strike, with dip arrow and number attached as before. The greatest care must be taken to avoid confusing slaty or schistose structure with bedding, and in all cases where there is the least doubt about the true bedding direction, indicate it by a query. To each exposure on the face of the map attach the number of the specimen representing it. In mapping the section count each of the spaces between the blue lines as 100 paces, and twenty of these spaces to one mile, or 2,000 paces. Usually the southeast corner will be placed at the bottom of the page, or at the first black line above the bottom of the page, and at the right-hand side. If, however, for any reason, it is desirable to show portions of an adjoining section, the southeast corner may be shifted up, or the map may be turned around and the north placed at the left-hand side of the page. The ruling of the left-hand pages is also arranged so that, if desirable, a larger or a smaller scale can be used, eight inches, two inches, one inch, or one-half inch to the mile. With the two-inch scale, the squares outlined in black represent sections, and those in red, quarter sections and "forties," while the space between the blue lines is 200 paces.

2. On the right-hand page place the notes descriptive of the exposures. Begin in each case with the number of the specimen, placing the number on the left-hand side of the red line, after which give in order on the right of the same red line the position of the ledges as reckoned in paces from the southeast corner of the section and the dip and strike when observable, the latter always being expressed from the north; for instance 4025, 250 N., 300 W., *Strike, N. 78° E., Dip 50° S.* Then follow with a full description of the ledge. When topographical maps are used for locations this paragraph applies only in part.

3. Collect a specimen from every ledge, or wherever there is a change of rock on any one ledge, taking care to get fresh material, unless for a special purpose the weathered surface is desired. In case of trips made on foot or in canoes, for long distances, neighboring ledges, unquestionably of one kind of rock, need not be specimened. The position and extent of the ledges not specimened should be marked on the map, with notes that each is of a rock identical with specimen so-and-so. Under the same conditions small-sized specimens, trimmed to a uniform size of $2 \times 2\frac{1}{2} \times \frac{1}{4}$ inches will be allowed, but in all other cases *large-sized specimens*, trimmed to a size of $3 \times 4 \times 1$ inches, must be selected, in accordance with section 3, chapter IV, p. 44, Regulations of the U. S. Geological Survey. Specimens should not be placed together without protection in the collecting bag, as the fresh surfaces, important in determining the character of rocks, are thus destroyed. They should be damaged by no temporary mark, but the numbers should be at once marked in at least two places upon the inclosing paper or cloth bags. Specimens may be permanently marked in camp by painting the numbers upon them in white upon a black background, using Silver White and Ivory Black oil tubes for color, with turpentine as a diluent.

4. On the last twenty-five pages of the book give, as may seem desirable, a general account of the examination of the region mapped in the previous pages, correlation of observations, sketches, cross sections, etc.

5. Forward this note book as soon as filled as registered mail matter to C. R. Van Hise, U. S. Geologist, Madison, Wis.

Not Related.

#156

24445

24460 (L. co.)

24539

69

Nos. 24414-24539 + No 2.
also Nos 24568-2470-71

Notes
on
The Marquette Range.

J. M. Clements
1893.

Compassman
Chas. Perry of Marquette.

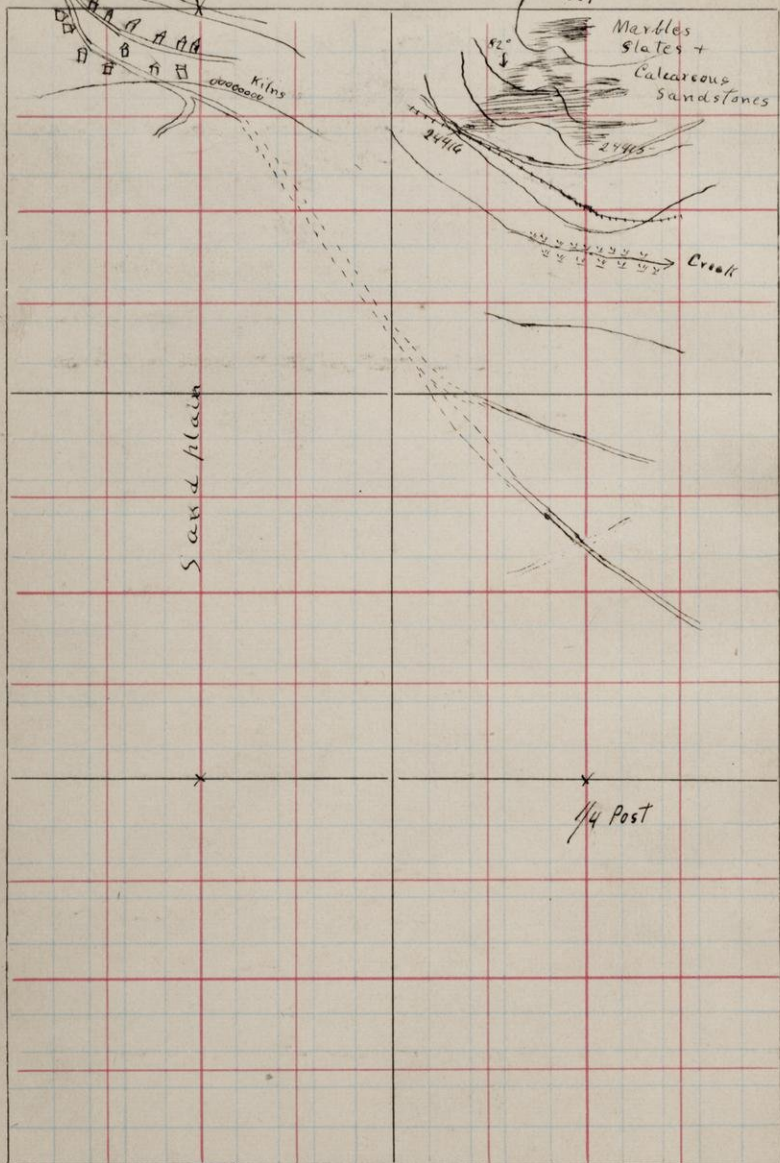
I

S. 26+31 T. 48

R. 26+25-
CoyNW 1/4
S 31

NE 1/4

S 36



Map I

From 500 W of NE Co. S 36-48-26 run S over sand plain with no outcrops. In S $\frac{1}{2}$ of section came to outcrop at

Map II
24414

N 67.2° W 535 from SE Co. S 36-48-26 of quartzite. We then ascend slight rise and sand plain continues, rolling gently.

Map III

In S 1-47-26 we go over considerable hills of sand and then descend to swamp fringing the Cache River at N 41° W 500 from SE Co. S 1-47-26. From this point we run E along the sand hills & E section line then N. N 12° 48' from SE Co. S 1-47-26. Cache River.

Running N we ascend sand hill, about 75 ft high, and then run across a quite level stretch of country with some swamp & NE Co. S 1-47-26. Continuing we descend gently to sand plain which continues to about N 15° 50'. We now cross creek and R.R. and begin to ascend a hill with S face covered with exposures of the marble series, cherty marbles, slates and calcareous sandstones or quartzites. General strike of series is about E., dip 82° S.

24415-

N 18° 54' from SE Co. S 36-48-26 & specimen of purple slaty marble. Outcrops of series continue to N 19° 50' where we are on sand covered flat top of hill.

II

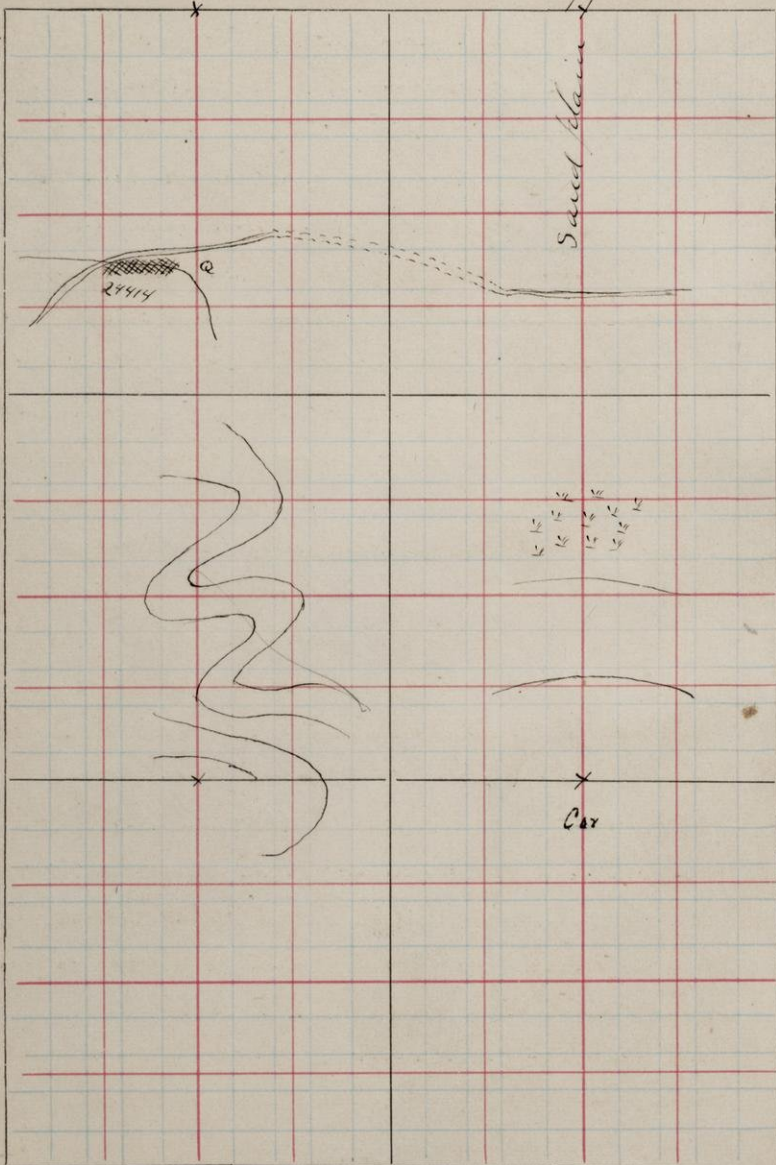
S. 36+31 T. 48

R. 26 ∇ 25-
1/4 Post

SW 1/4
S 31

SE 1/4

S 36



24416

N 1865 W 130 from SE Cr. S 36-48-26. Here we find outcrop of a green schistose rock. Strike of schistosity agrees with the bedding of the Marble series. Strike 10° N of W. Dip 85° S. Is this greenstone overlaid by the marble series and with the schistosity caused by the pressure from the beds deposited on it? We continue N on E section line of S 25-48-26 and passing over sand hills reach at

24417

N 460 from SE Cr. S 25-48-26 greenstone hill. We now run E over sand plain and then S from south face of high greenstone (24418) hill. Sand hills continue to S with no outcrops. At N 1690 W 1300 from SE Cr. S 31-48-25 we find in midst of valley where sand has been eroded away a low outcrop of some of the strata of the marble series again. Strike 3° S of E. Dip 85° S. Outcrop continues S E some distance.

24418

We now cross R.R. and creek, around slope and continue S over sand plain. About N 400 a rise begins to be noticeable and at N 370 ^{N 5-65} ~~W 65~~ from SE Cr. S 31-48-25 we find small pit to greenish slate ledge.

Are not some of strike of slate. ~~Figures given~~ ^{that} may be of the schistosity. Strike 25° S of E, dip 80° S. From this opening a small ^{shallow} trench runs SW and in it is exposed a reddish slate of 24419

III

S. 146

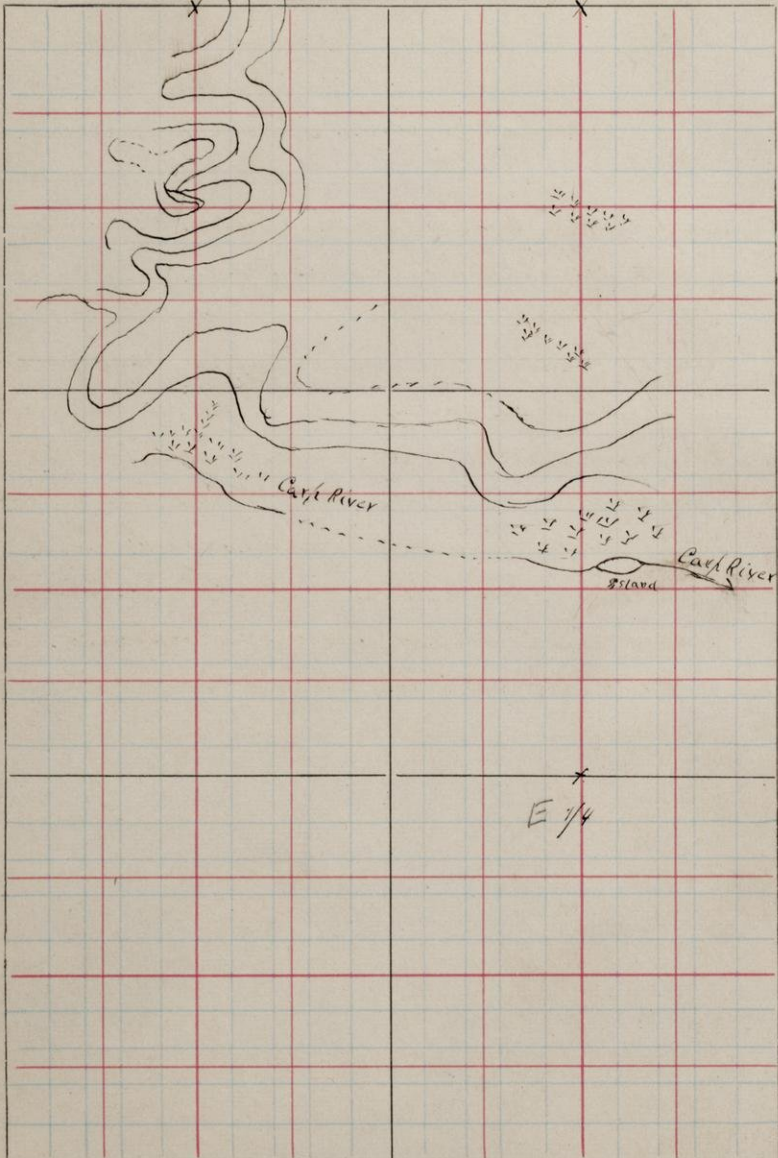
T.

R. 26 ⁺²⁵
Cov

NE 1/4

S1

NW 1/4
SG



L.

and also a grey rock (24420) No relations. At

24419-20 N 13.70 W 15.75 - is a large pit now full of
water with red slate (24419) and a
grey rock with ferruginous bands through
it (24420).

24418-19 N 36.5 W 15.80 In shallow trench running SW
into slope of hill red slate (24419) followed
by green slate (24418), no relations.

24419-20 N 16.0 W 15.50 Some test pits with same rocks
as 24419-20 on dump but ledge can't be seen in pits.

24421-2 N 11.0 W 15.85 is a large pit - full of water -
which has on its dump banded gneiss (24421)
and very little of a conglomerate (24422)
We now continue over drift plain to
summit at N 136.5 W 15.00 + river Ceph at N 13.10
W 15.00 from SE Cor. S 6-47-25.

IV

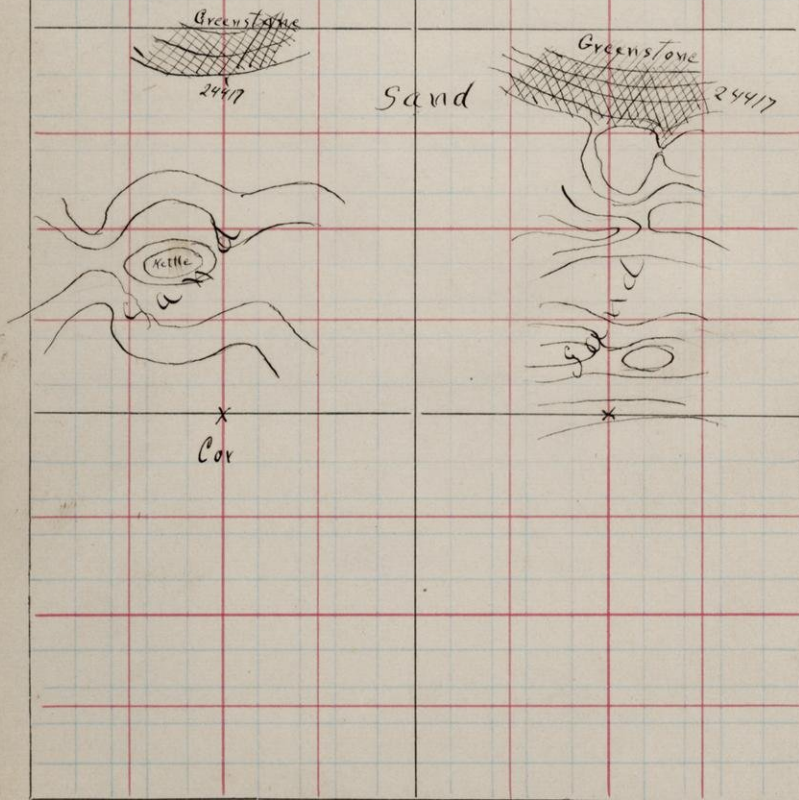
S. 25 + 30 T. 48

R. 26 + 25 -

SE 1/4

S 25 -

SW 1/4
S 30



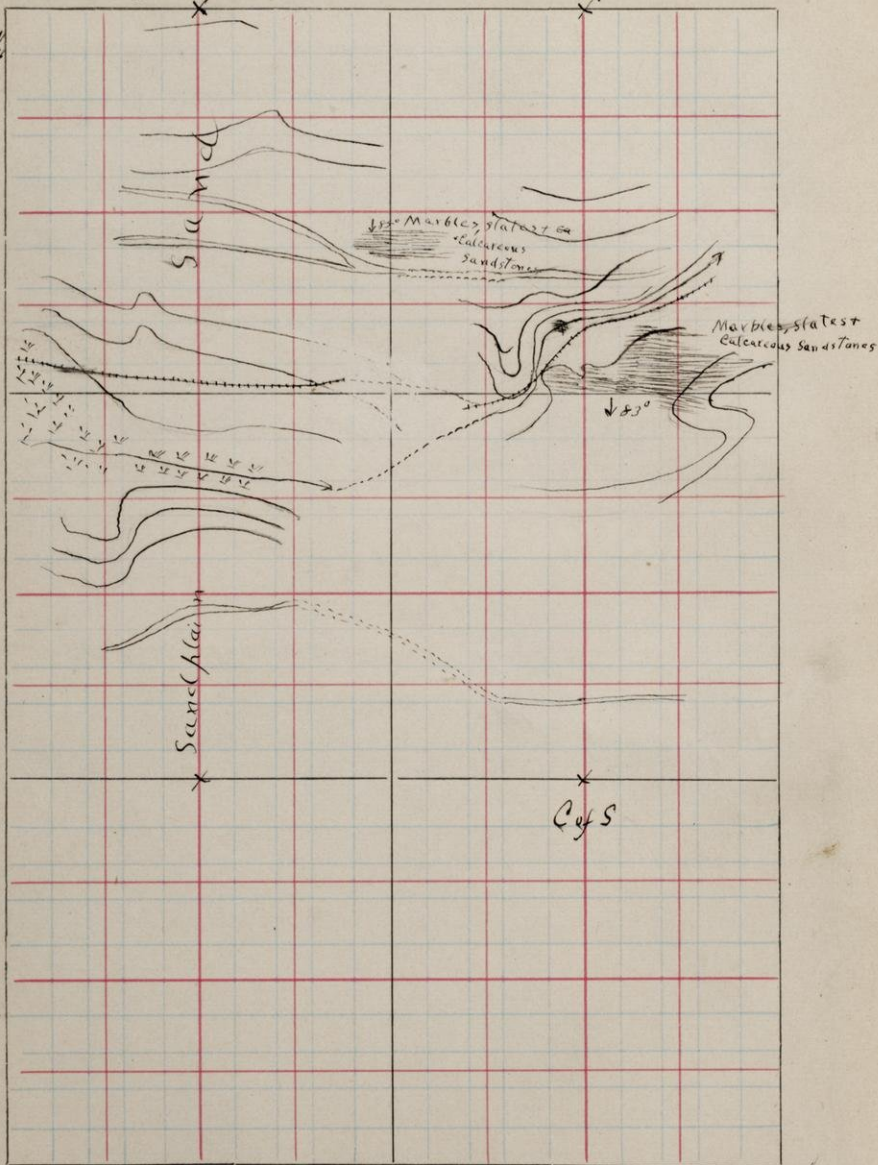
V

S. 31

T. 48

R. 25 N 1/4 Post

NW 1/4



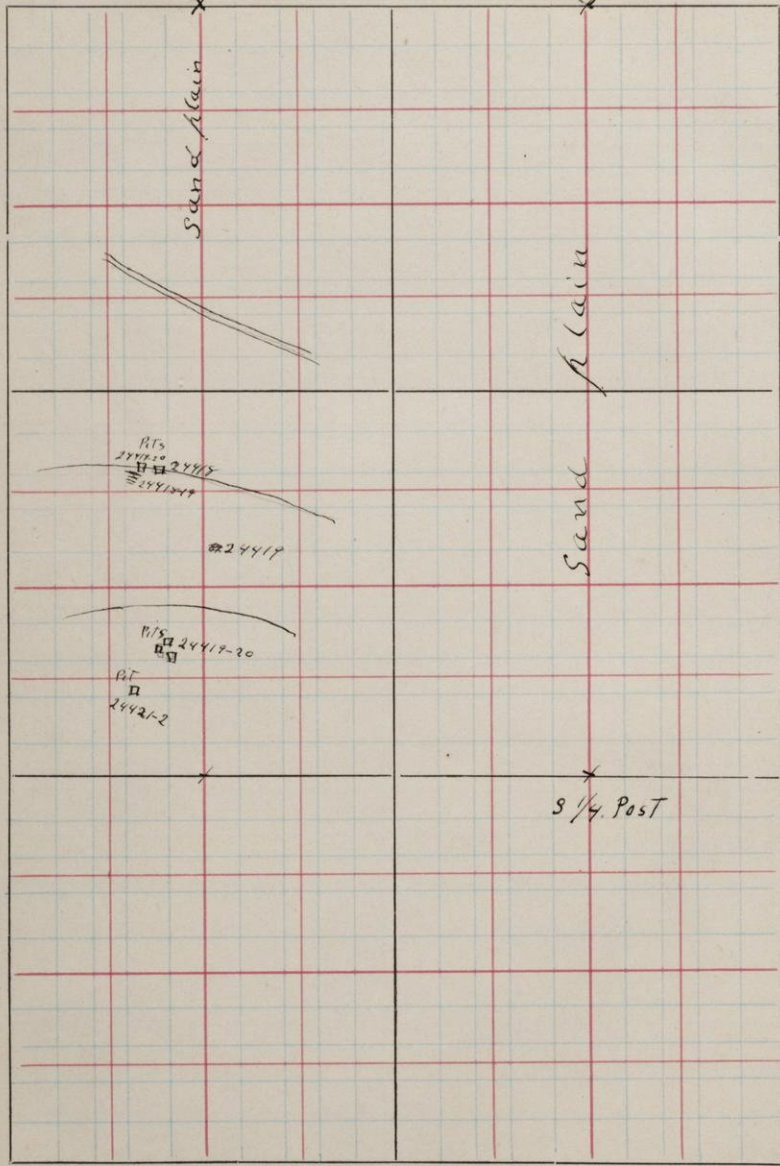
VI

S. 31

T. 48

R. 25 ^{2 of 5}

SW 1/4



S. 

T. 47

R. 25-

N¹/₄ Post

NW $\frac{1}{4}$

Gift place

Q. 11

Carp River

Conf S.

6—747

Map VII

From C. of S 6-47-25 ran N at first through swamp then over gently rising ground covered with splendid grove of maple. About N 700 we begin to find test pits at first only in the drift but at

- 24423 N 845 W 910 from S E Co. S 6-47-25 we come to pit with ferruginous slate on dump.
- 24424 N 860 W 910 from S E Co. S 6-47-25 small outcrop of a reddish rock (24424)
- 24425 N 880 W 905 Pit to ledge of gasper. Very much broken up, can't get stick, etc. Running from this pit a little N of W is a trench at
- 24424-5 N 880 W 905 in which is exposed the same rock as 24424 and also the gasper 24425. Jasper occurs farthest to W in trench. Can't see whether it overlies or underlies other rock.
- 24426 N 910 W 900 Small outcrop in side of shallow pit of red & gray mottled slate. Schistosity strikes NE.
- 24427 N 1910 W 900 Ledge of nearly same slate as 24426. Schistosity strikes E 15° N.
- 24428-9 N 1925 W 902 is a trench running N into quartzite outcrop. Here in the trench we have the green slate (24426) alternating with thin quartzite beds (24429) and then passing into the quartzite ridge. Schistosity and

VIII

S. 20

T. 48

R. 25-

C. of S.

SW $\frac{1}{4}$ 

bedding seems to agree. Strike $E 10^{\circ} N$. Dip $80^{\circ} W$.
 Exposure so poor that was not perfectly
 certain about dip.

24430

N1945-W1045- West end of quartzite outcrop.

24431

N2000 W1045- Large knobs of quartzite
 Just on edge of clearing of Waples' farm
 is a row of test pits about

N1900 W1040 from SE Co. S. 6-47-25. They are now
 all caved in and nearly filled but one shows
 iron ore on dump.

Map VI

S $\frac{1}{4}$ S 36-48-25- From this point we
 continue N. over wide sand plain

Map V

with no outcrops. About N1400 we
 descend sand hill & valley and at
 N1505 W 958 from SE Co. S 31-48-25 we
 get first outcrop of marble series, cherty
 marbles, slates and calcareous sandstones,
 (cf. locations to W in S. 35-36 on nearly
 same line & W of same series) which
 continues to N at 1585 and shows on edge
 of hill to E. Strike $E 5^{\circ} S$. Dip 83° .

N1595-R.R. N1625 Creek. This cuts
 through the marbles and forms falls at
 N1595 W1025 from SE Co. S 36-48-25.

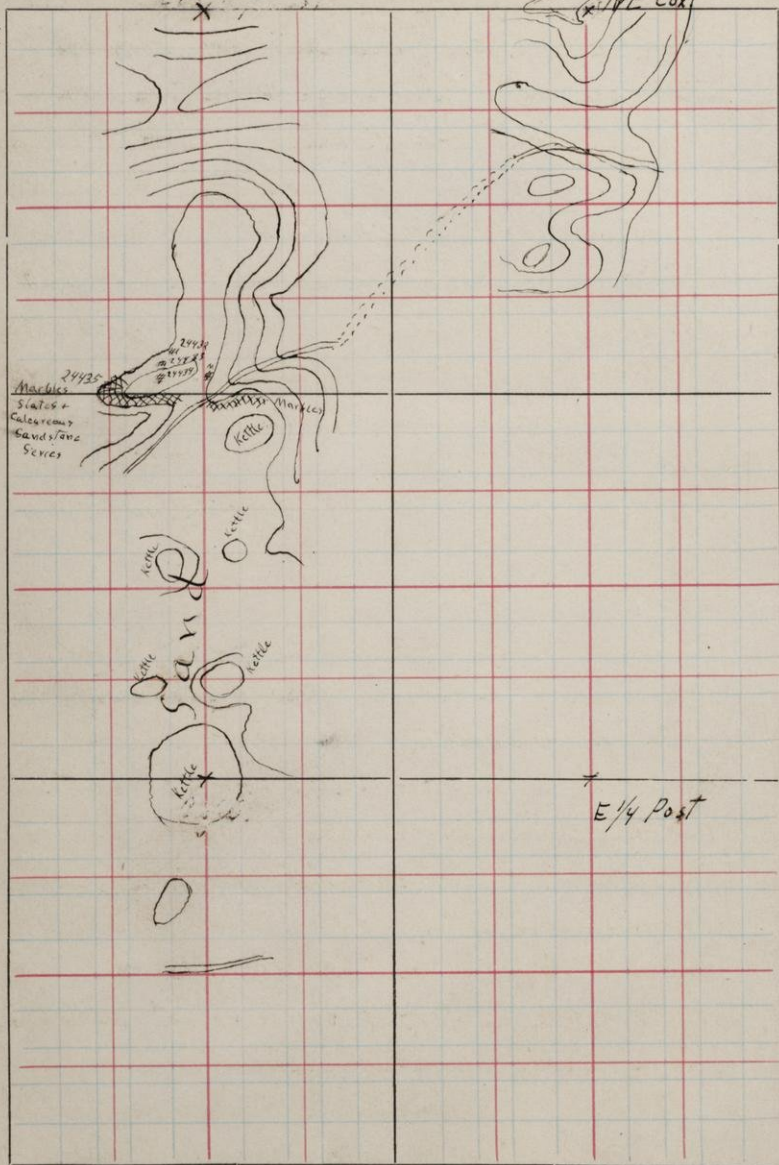
We cross stream and ascend steep hill of
 drift. N1665 Wagon Road. Did not find $\frac{1}{4}$ Post.

IX

S. 31

T. 48

R. 25-

NE $\frac{1}{4}$ 

Map VIII

From S $\frac{1}{4}$ Post 530-48-25 we continue N over drift to N 400. From here I can see that there are no outcrops up to the granstone which is just ahead. Now run to E. along drift ridge with swamp to S. and granstone ridges to N.

N 400 W 840 from SE Cr. 530-48-25 we get small outcrop of granstone on side of slope.

N 400 W 725 another small granstone outcrop.

N 400 W 500 from SE Cr. 530-48-25 begins granstone which runs to E in large hill.

Map VIII

From N 400 W 1500 run S through swamp and over drift to section line.

S 75°

Map IX

From W 500 from NE Cr. 531-48-25 run S over drift hills. We ascend high hill covered with low growth of hordwood and at

24432

N 560 W 548 from SE Cr. 531-48-25 get small outcrop of reddish marble followed at

24433

N 1540 W 553 by another outcrop of felicitaphite marble, and at

24434

N 1530 W 556 we get outcrop of Cherty marble. There are small isolated outcrops on which strike can't be determined.

N 1520 W 497 Small cream colored marble outcrop.

N 1485 W 535 Here outcrops the light colored Cherty marbles of the marble

X

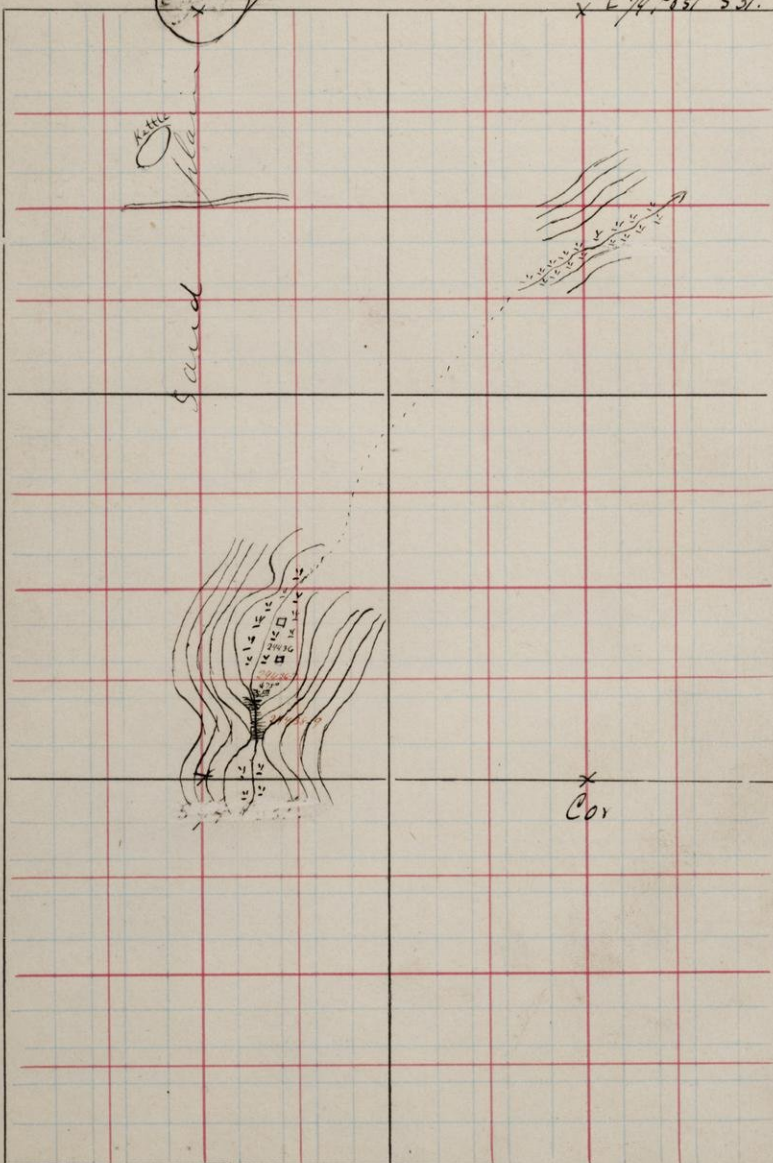
S. 2/

T. Kettle 48

R. 25-

x E 1/4, Dist S. 3/4

SE 1/4



series located to W. on same line E-W.
Bed exposed ^{just} here much contorted and can
get any strike and dip.

N1485 W497 Running E of line from last location
more marbles of marble series. Outcrop on edge of
hill.

We now go over sand hills and small
plains with numerous depressions
or kettles about 50 paces across at
bottom and thirty to forty feet deep.

Map X About N250 W500 from SE Cr. S31-48-25 we
begin to descend drift hill - or rather the line runs
along the W slope of the valley -

24436-7 N110 W425- old open working in slates red 24438
and greenish (24436) Strike E5°S. Dip 75°S.

N200 W400 old pit in drift.

24436 N150 W400 Tent pit & ledge. Full of water.
See dump (24436).

24438-9 N100 W440 begins a long trench about 4 ft
deep extending to S. It cuts through reddish
slates for about 70 paces. Strike E. Dip 80°S.
There are beds in the slate which are very richly
impregnated with iron (24438). Here the slates
have lost their good cleavage and break into
irregular fragments. Some pits also to E of trench along it.
(Cf. 24415-19-20-21 in S at N370 W1565 from
SE Cr. S31-48-25.)

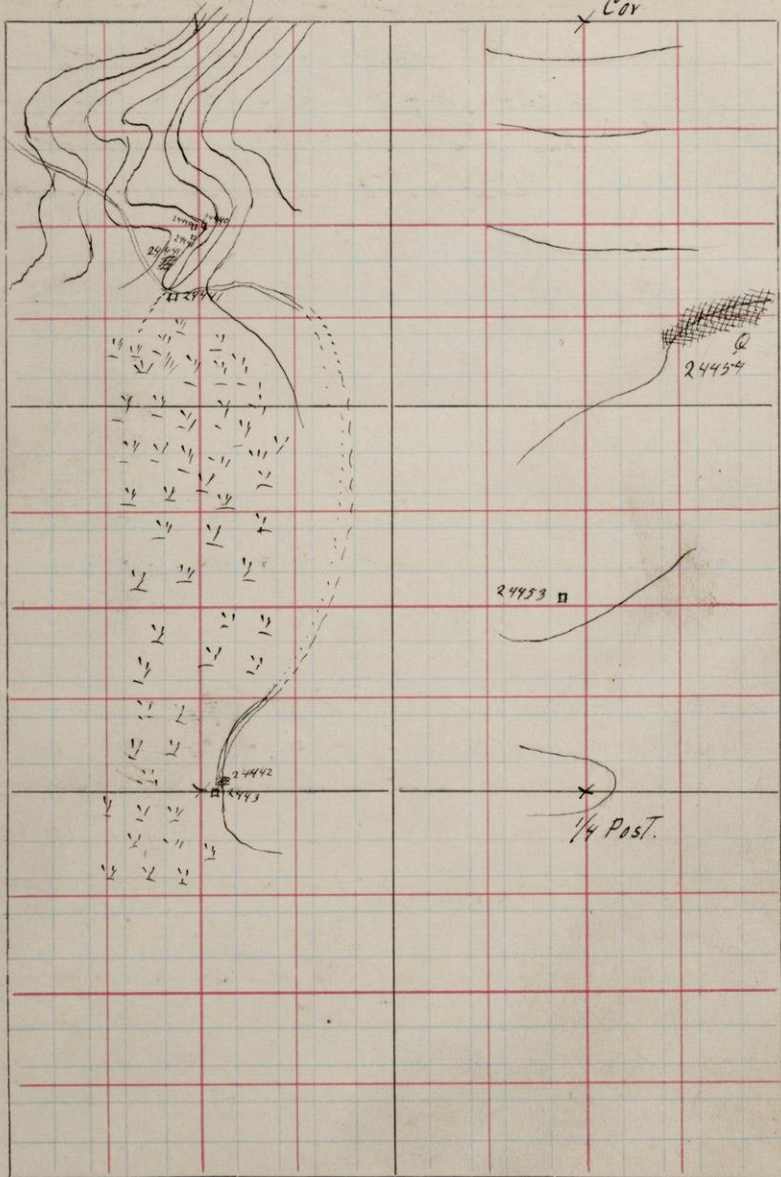
XI S. 6

T. 47

R. 25-

X Cov

NE 1/4



Map XI

From W 500 from NE Cor. S 6-47-25 to run S & Corp.

24440

We go south up a valley and at N 1750 W 490 from SE Cor. S 6-47-25 come to pits along side of hill in ferruginous slate, in some places quite sandy (24440). 2 specimens N 1750 W 515 Pit in same rock.

24441

N 1780 W 510 Pit, the rock in it is more like banded gneiss. N 1720 W 545. Same rock as 24441 shows again in a small trench.

24442

N 1655 W 545 Large pit in 24441 at head of valley. N 1005 W 470 Outcrop of reddish quartzite for about 10 feet along old road.

24443

N 1000 W 480 Where borings have been made. Took some of the cores.

Map XII

From W 500 from E 1/4 Post S. 16-47-25.

24444

We now leave the dry swamp through which we have been running and cross a low hill and at head of small valley at N 680 W 500 get moss covered outcrop of green slate

24445

N 660 W 480 outcrops a red slate. The hill side slopes gently and outcrops cease. We now ascend rather steep hill with very steep face to S. and here the red and green slates are exposed at

24446

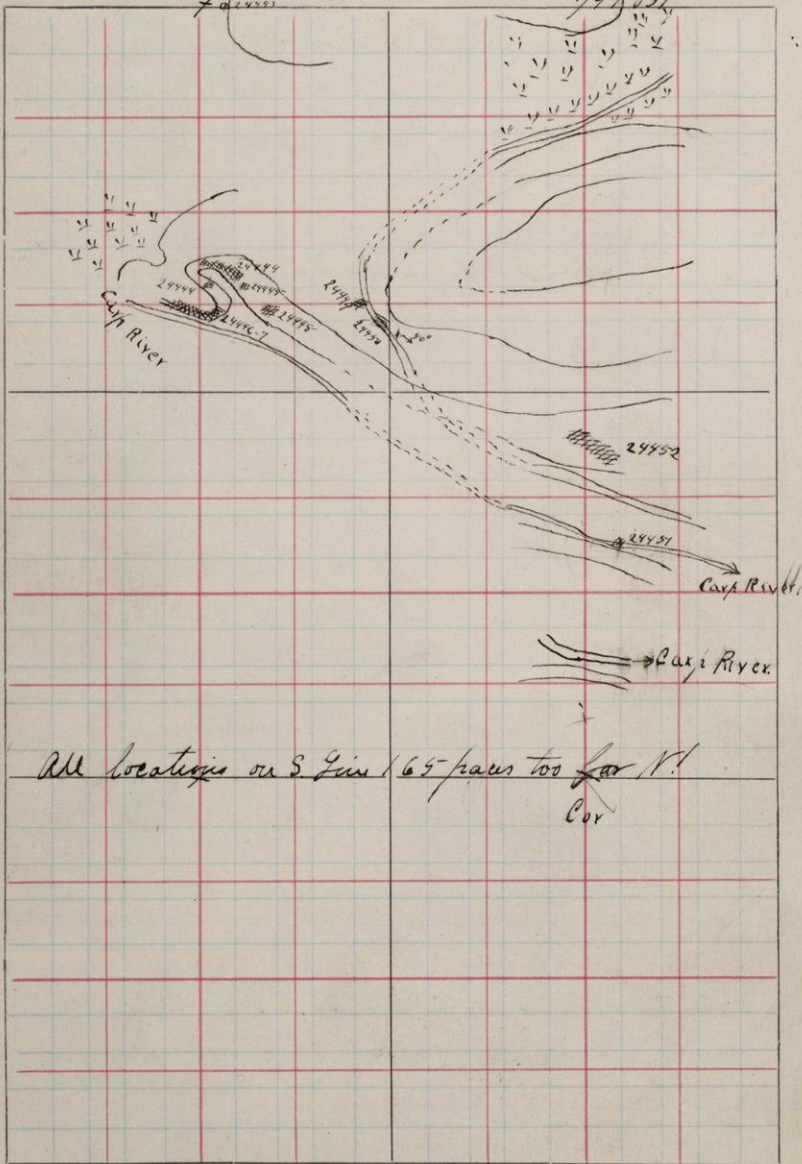
N 625 W 500, and along face of hill, in places they get quite ferruginous. Strike, W 30° S, dip 50° NW. N 600 ~~the~~ Camp River.

VII S. 6

T. 47

R. 25

SE 1/4



Map XV

Ran E from river to section line.

24448

N625-W410 Small slate outcrop.

24449

N625-W283 In old road small ledge of sandy slate.

24450

N605-W270 In same road ledge of black schist slate with good deal of pyrite in it. Strike of schistosity W 30° N. Dip 50° SE. Possibly also bedding.

N ¹⁶⁰ ~~325~~ from SE Cr. S6-47-25. Cash River. 30 ft wide.

24451

N ¹⁵⁰ ~~325~~ E 55 from SE Cr. S6-47-25 outcrops in river bed ledge of black slate forming small rapids in river. (Strike about S 25° E. Dip 30° SE ?)

24452

N ²⁸⁰ ~~425~~ E 25 from SE Cr. S6-47-25 outcrops in moss covered ledges & blocks a schistose greywacke. Can't get stick etc.

We continue to around hill covered with hardwood and showing no outcrops. On N. side find pit showing only drift. We cross narrow swamp and begin to around gently and at

Map XVI

24453

N ¹⁰⁷⁵ ~~425~~ W 30 from SE Cr. S6-47-25 find large pit with dump of same ferruginous rock as that which outcrops to W. about on same line. (24443)

We now enter hardwood and continue over gently undulating ground. At

24454

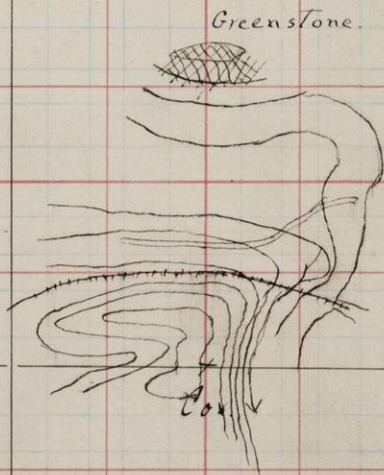
N1610 E 100 from SE Cr. S6-47-25 begins a large ridge of quartzite, N. face very steep, steep. Continue, rising gradually to NE Cr. S6-47-25 on high hill.

XIII S. 30/29 T. 48

R. 25-
E. 1/4 Post

SE 1/4

S 30



- Map X From S. Co. 31/32-48-25 continue N
on section line.
Co. is on high hill covered with hardwood.
We descend to N. but hill was so cut
up that could not find topography
in at all. No outcrops show. Apparently
all drift
N680 Stream
- Map IX We keep on over sand hills
showing no outcrops to the N ^{Co. is} section line.
N1825 Wagon Road.

- Map VIII N. Co. of S 31/32 is on side of high sand hill
with R.R. + creek to N. Creek bends around
and runs to E along foot of hill and
runs S and then SE.
- N125 R.R.
N160 Wagon road.
N200 Creek.
N350 Come to foot of greenstone bluff.
End run here.

XIV

S. 6

T. 47

R. 25-

N $\frac{1}{4}$ Post

Cor.

NW $\frac{1}{4}$

Cox River

Drift

W $\frac{1}{4}$
Post

C of S.

Map XIV

From N 1325 W 1850 - Corp River - in S 6-47-26

ran S. at first through swamp
fringing river then over boulders

Map XV

to 1/4 line. We now ascend gradually
no outcrops showing - N 720 W 1800 -
and each top of ridge about N 65-0.
We now descend and after connecting at
w 1/4 Sec SW Cor. continue on same

Map XVI

line S into S 7-47-26.

Line now is through swamp nearly
all the way to 1/4 line. No outcrops.
N 1825 - Reid's Winter Road.

Map XVII

S of 1/4 line we are again in swamp which
however ends about N 700 W 1750 from SE Cor. S 7
and we ascend a hill covered with hardwood.At first we get small outcrops of colored marble.
N 678 W 1800 from SE Cor. S 7-47-25 - Red marble.

24455-

Take note

24455-

N 625 W 1780 same marble on little higher level. To
judge by cherty bands in it this is nearly horizontal
though am not perfectly certain.

N 575 W 1795 Ledge of coarse white + red marble.

24456

N 555 W 1750 ^C Line comes to outcrop of dark green
rock extending to W about 150 ft. Can't
get relations to other rocks here. It looks
like an eruption. At

24457

N 536 ^{W 1750} Outcrops pink cherty marble, also
run down to lower level than the green rock (24456),

XV S. 6
W 1/4 Post

T. 47

R. 25-

C of S

SW 1/4

SW
Cor

S 1/4 Post

nearly horizontal. Dip 10° lies N of W. Strike N.
Some strata very much contorted.

2445-7

N 51.5 - Same W 1850 Same pink marbles
cap hill. Nearly horizontal as well as can be seen.
Descending hill we cross narrow
swamp - extending around end of hill -
and then west end of hill covered
with heavy hardwood growth and
showing no outcrops and enter swamp
again. Section line runs through this swamp.

Map XVII

From N section line S 18 W 1750 from SE Cr. S 18-47
we run S through swamp for 100 paces and
then over a hill covered with heavy
hardwood - no outcrops - and through
swamp again. This ends about N 1100
and we ascend a low hill and at

2445-8

N 102.5 - W 175.5 from SE Cr. S 18-42-25 - on S face
of hill we get quartzite outcrop. Dip 40° NE
Strike NW?

Map XIX

Continuing, in SW $\frac{1}{4}$ S 18 we find
frequent outcrops of marbles and further S
quartzite. Exposure was for the most part
poor and it was difficult to get strikes, etc.

2445-9

N 97.5 - W 175.4 from SE Cr. S 18-47-25 - Marble. Dip NE?

N 95.0 W 176.5 Marble. Dip 20° NE?

N 90.0 W 176.5 Marble

2445-8

N 88.2 W 177.0 Quartzite ledges freshish.

XV S. 7

T. 47

R. 25-

N¹/₄ Post

Cor
NW¹/₄

W¹/₄
Post

C of S.

- 24460 N 820 W 1820 Purplish slaty limestone lying
apparently horizontal.
- 24458 N 795 W 1820 Quartzite ledge.
N 632 Small ledge of quartzite.
N 628 W 1800 Outcrop of quartzite.
N 605 W 1750 Quartzite ledge exposed around hill for 90 ft.
N 548 W 1750 Small quartzite ledge.
N 500 W 1750 Quartzite 40 ft across face extends
75 ft across S E + 15 S W of line.
- N 468 ^{W 1750} Large outcrop of quartzite purplish,
in places cherty, extends to E around
S. face of hill overlooking sand plain.
- 24461 N 70 W 1750 from S E Cor. S 18-47-25 end of low
isolated hill of marble series. Shows outcrops
all over of marbles + slates. Very much broken
up so that I failed to get strike + dip.

XVII S. 7

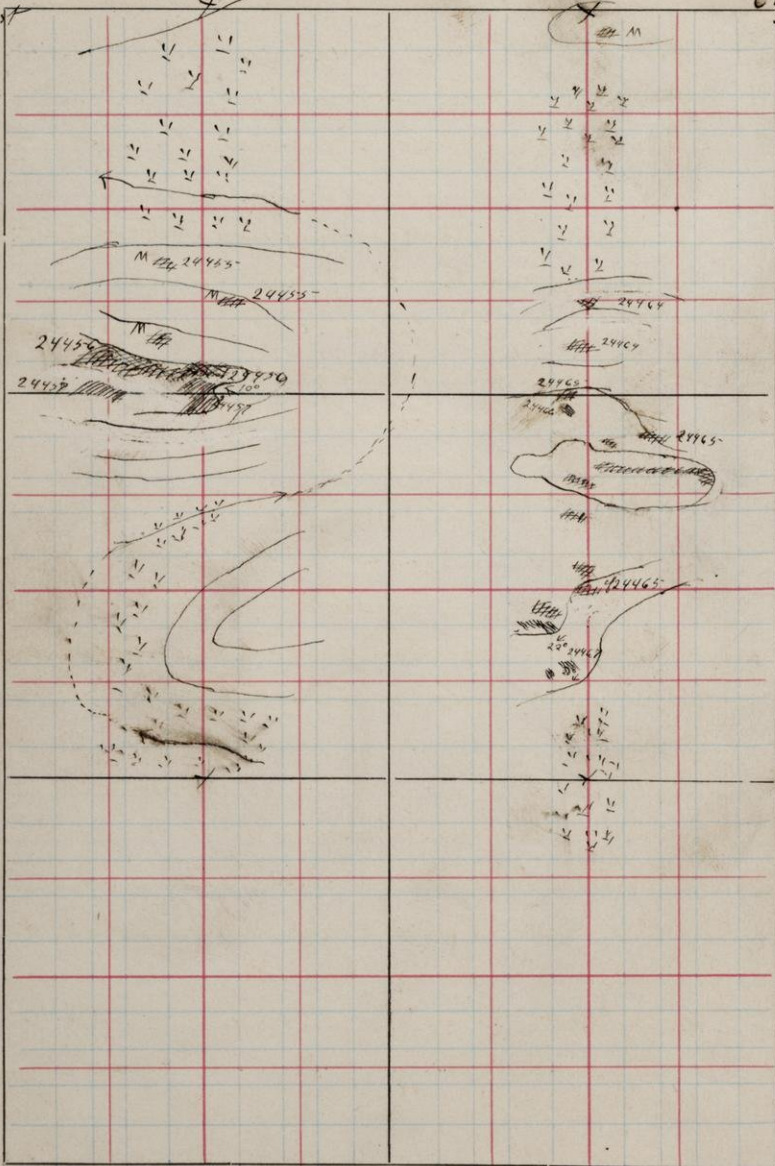
T. 47

R. 25

C of S.

W 1/4 Post

SW 1/4



SW
Cox

SW
Post.

Map XV

From N1000 W1250 from SE Cr. S6-47-25-
 run S. Start at camp just on S. bank of
 Coon River and ascend drift hill. Get
 no outcrop until begin to descend hill to
 S. of creek.

24462

N1000 W1180 we get ^{Hard} slate outcrop with
 thin beds of ferruginous slate $\frac{1}{2}$ -2 inches thick.
 Strikes E, dip 20° little W of N. Some of the
 slate layers in the slate also seem to be
 slightly quartzitic (cf. specimen 24462).

Map XVI

From N200 W1250 from SE Cr. S 47-47-25-

We cross at 45-faces south of starting point
 continuation of outcrop (24462) described above
 and then enter swamp which ends in
 about 300 faces and we then cross low
 hills with no outcrops showing until we reach

24463

N1018 W1250 from SE Cr. S7-47-25- where we
 get small marble outcrop.

Map XVII

No more ledges are found before

N 245° W1250. Ledge of pinkish quartz (cf. 24465)
 N 225° W1315- Ledge of marble.

Another small marble (red) ledge shown
 at N 975° W1235 from SE Cr. S7-47-25-

We cross swamp and ascend hill
 covered with small marble ledges on
 which it is impossible to determine strike, etc.

8VIII

NW
Cor.

S. 18

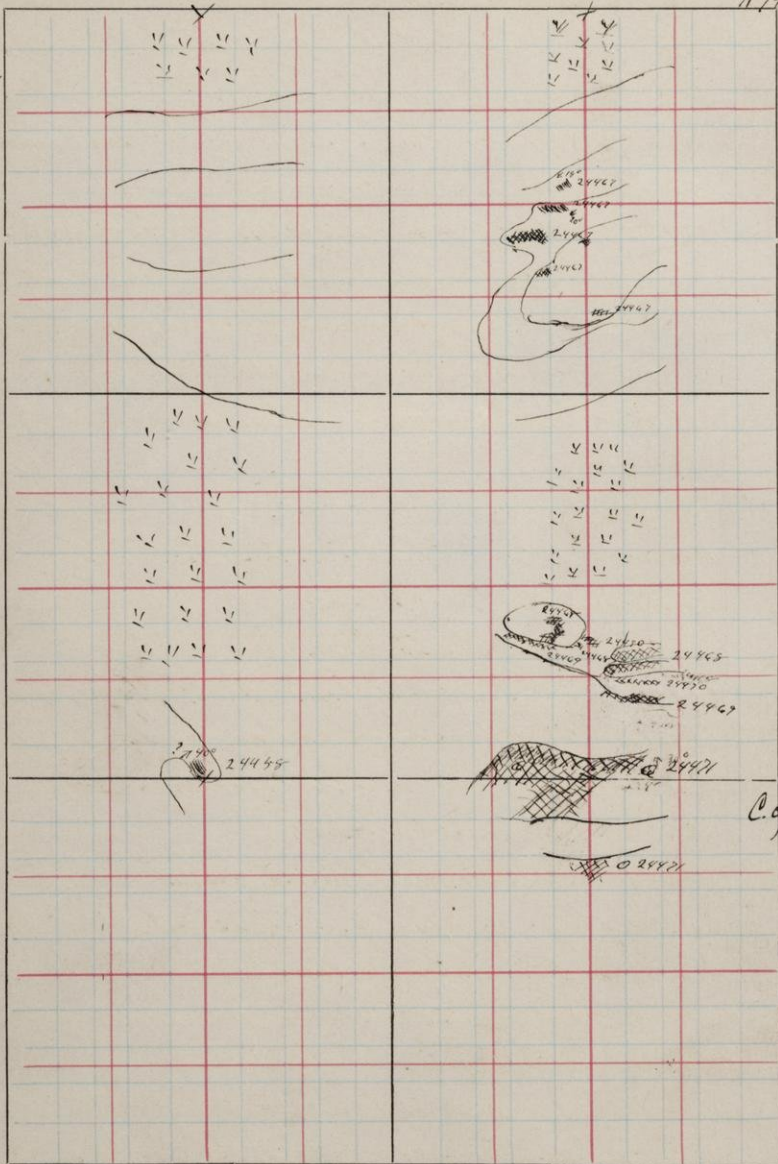
T. 47

R. 25

N¹/₄ Post

NW¹/₄

W¹/₄
Post



- 24464 N 625 W 1230 from SE Cr. 87-47-25. Outcrop of marble, showing now in different colored blocks piled on each other. At top is stone ledge of red marble (24464) lying nearly horizontal.
- 24464 N 558 W 1250 Same ledge outcrops again. (24464)
- ~~24464 N 550 W 1285 Large ledge of slaty limestone~~
- 24465 N 500 W 1285 Small ledge of marble.
- 24466 N 480 W 1285 Large ledge of slaty limestone. Lies above 24465 and seems to dip to NE.
- 24465 N 450 W 1175 Outcrop of 24465 on hill side
- N 445 W 1225 Small knoll of same pink marble Very much contorted.
- N 405 W 1100¹²⁵⁰ Pink limestone ledge.
- N 390 W 1250 Marble ledge.
- N 345 W 1250 Marble ledge.
- N 225 W 1250 Marble ledge. All of these ^{masses} ~~ledges~~ seem to be lying nearly horizontal.
- 24465 N 248 W 1250 Pink marble ledge (cf 24465)
- N 225 W 1310 Marble outcrop.
- 24467 N 200 W 1300 Outcrop of thinly bedded purple limestone. Strike NW. Dip 20° SW.
- 24467 N 140 W 1270 Outcrop of same limestone as 24467. Strike NW. Dip 20° SW.
- 24467 N 140 W 1250 Same.

We are now near 8 foot of hill, where enters swamp which continues into S 18 about 100 paces. We get our first outcrops, on ascending hill, at

878

S. 18

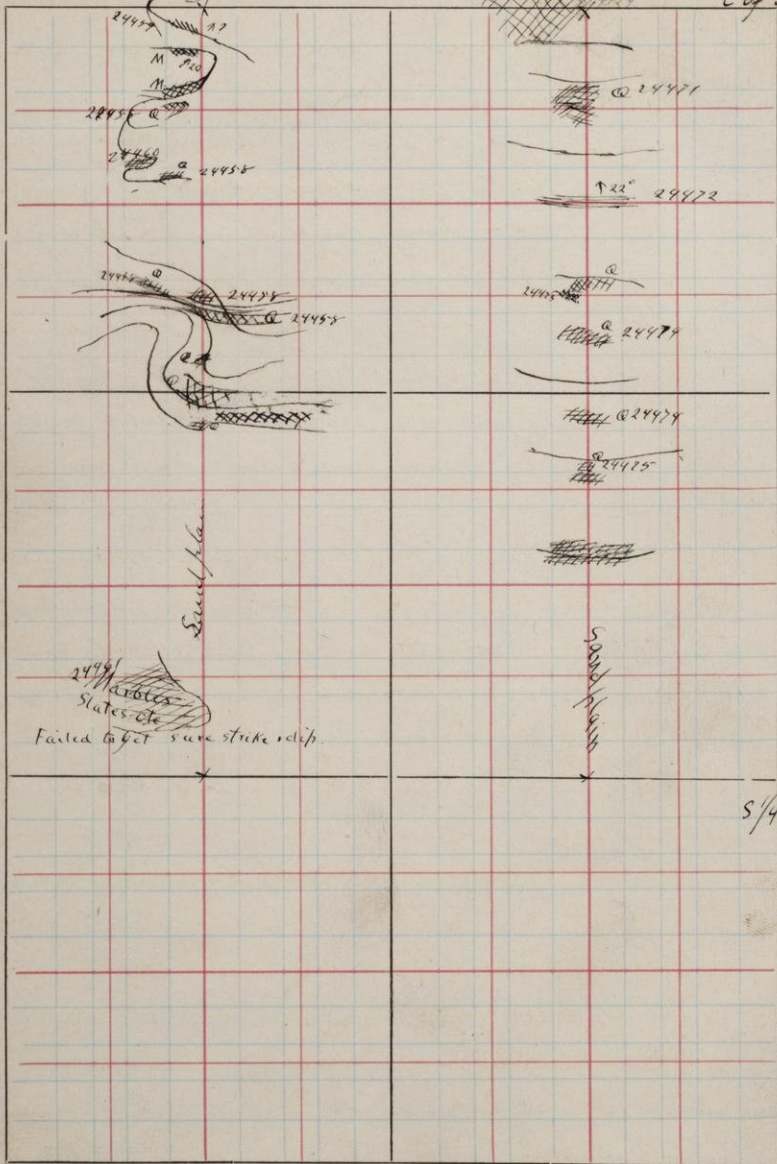
T. 47

R. 25 - C 24421

Cof S.

W/y
Post

SW $\frac{1}{4}$



SW Cor.

S 1/4 Post

Map XVIII

- 24467 N 1778 W 1270 Here we find same purple limestone (cf 24467) found across valley & N. Strike NW. Dip 18° SW.
- 24467 N 1740 W 1280 Higher outcrop of same Dip 20° SW.
- 24467 N 1718 W 1325- Same limestone
- N 1700 W 1250 Small purple marble ledge.
- 24467 N 1655 W 1310 Very small ledge of 24467
- 24467 N 1590 W 1225- Purple limestone outcropping here & there. 24467
- Crossing swamp we get at
- 24468 N 1200 W 1305- small outcrop of pink marble.
- N 1180 W 1290 Same marble but quite cherty here.
- 24469 N 1165 W 1305- Outcrops on S side of hill, below 24468, a bed of chert (24469) conformable with marble.
- 24470 N 1180 W 1250 Outcrops of marble
- 24468 N 1150 W 1215. Here there is a narrow cut between two with marble outcrops on either side 10 ft high about 50 ft across exposed to E.
- 24470 N 1130 W 1150-1110 Outcrop of pink marble.
- 24469 N 1110 W 1185-1235. The cherty beds outcrop again About 15-ft thick. Seam to dip about 30° little E. of N.
- 24471 N 1030 W 1295. Here we come to outcrop of purple quartzite which outcrops ^{nearly} all over N. side of hill (hill about 40 ft high). We cross outcrops of same quartzite as ascending more gentle southern slope of hill at about
- Map XIX
- 24471 N 900 W 1250 at
- 24472 N 745 W 1250 we cross ledge of purple slate,

Strike about E. Dip #22 22° N little E.

Dip of schistosity 75° N.

N 63.5 W 125.0. We go up over quartzite knob and on S side at

24473 N 63.8 ^{W 127.0} we see it in contact with ~~fine~~ slate. Strike of schistosity about 25° N of W. Dip 62° N little E. Are not sure of bedding. In the slates occur cherty bands running in direction of strike of schistosity. May be correct strike of beds.

24474 N 57.0 W 125.0 Knob of banded cherty quartzite very much contorted

24474 N 47.0 S W 125.0 Same 24474

24475 N 40.0 W 125.0 Red mottled ^{cherty} quartzite with irregular banding.

24475 N 30.0 W 125.0 Ledge of red mottled and banded cherty quartzite.

We now descend to sand plain which stretches out to S. and end run here.

XX

S.

6

T.

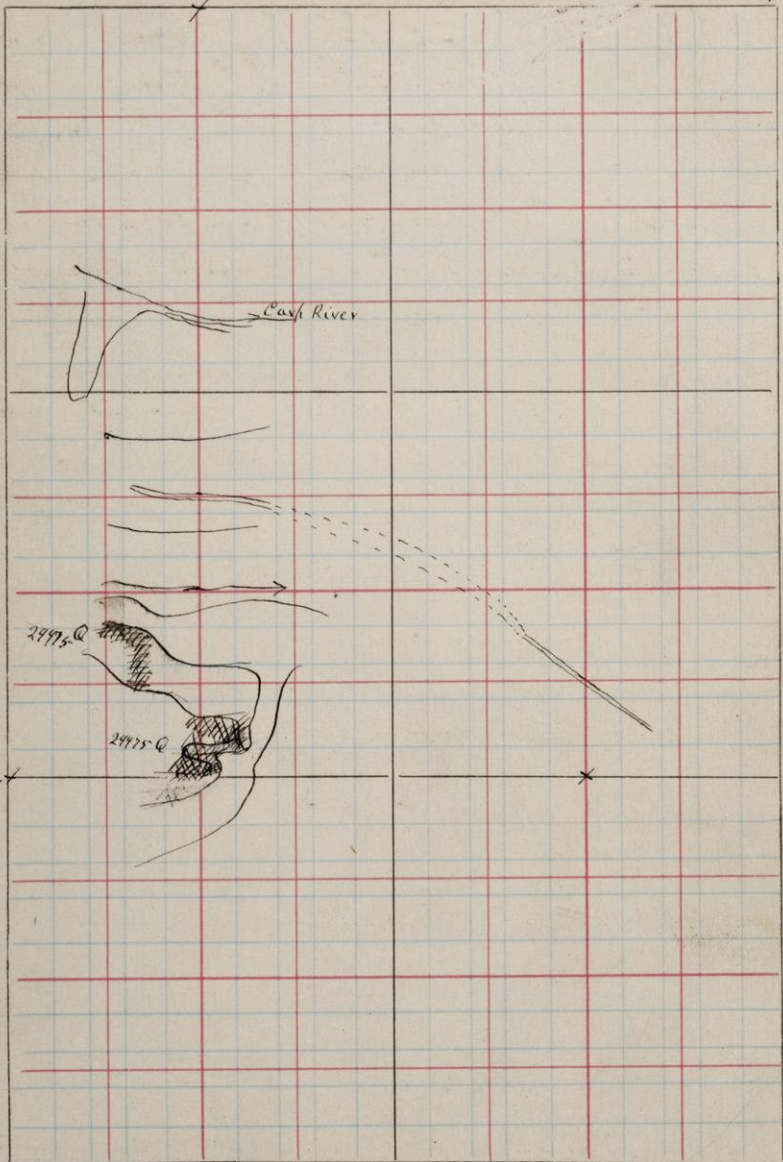
47

R. 25

C of S

E 1/4 Post

SE 1/4



SE 1/4

Map XX

- From N 600 W 750 from SE Cr. S 6-47-25-
at top of high bluff of green slate,
overlooking Cape River - Dr. Bayley worked
the river just here in detail - ran S
crossing road to Reids Camp and descending
hill. After crossing small creek we
begin to ascend at get outcrop of quartzite at
24475- N 200 W 820 which continues to outcrop for
75 ft as to S. at
24475- N 70 W 750 get outcrop of quartzite which
extends over top + east side of hill.

Map XXI

- From N 2000 W 750 from SE Cr. S 7-47-25- continue S
through hardwood.
24475- N 1790 W 815 Knob of quartzite same as above.
N 1100 W 830 Small ledge of pink marble.

Map XXII

- Crossing narrow swamp which widens out & as
we begin ascending gently but at
N 775 W 750 from SE Cr. S 7-47-25- come to
steep face of hill with bluff of marble.
Strata are contorted but for the most
part seem to be lying nearly horizontal
with slight dip to S.
N 665 W 740 Small ledge of pink marble.
N 440 W 785 Ledge of thin bedded purplish
limestone. Can't get certain strike etc.
N 255 W 735 Small ledge of calcareous sandstone
N 250 W 730 Small marble ledge.

XXI

S.

7

T.

47

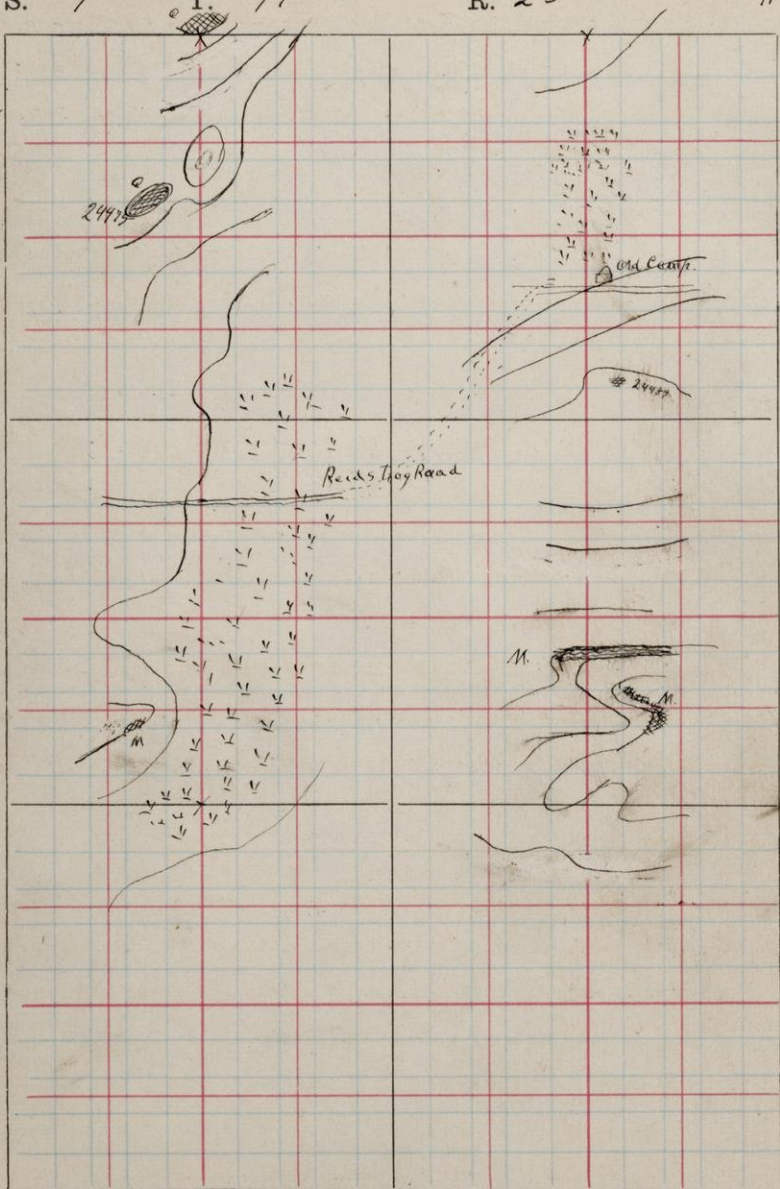
R. 25-

NE

Co.

N $\frac{1}{4}$

Post

NE $\frac{1}{4}$ 

N 184 W 690 Purple limestone outcrop on edge of valley. Strike about E. Dip 10° N. ^{from S.E. cor 52.47-25} little W of S.
 N 0 W 750 Large outcrop of flesh colored marble.

Map. XXIII

24476

N 18-97-25 from S.E. cor.

N 1900 W 735 Outcrop of a greenish rock apparently an eruptive. No relations. (cf. 24456 from S. 7.47-25, N 655-W 175.0 from S.E. cor.)

N 885 W 730 Very small outcrop of marble on higher level than rock located just before. Horizontal.

N 1830 W 710 Marble outcrop.

N 625 W 715 Purple thin bedded limestone. Strike E. Dip 22° N. Underlain lower down side of hill by heavy bedded marble.

N 1260 W 770 Flesh colored marble in large outcrop.

N 1235 W 750 Thin comes & steep bluff 15 ft high of uncovered marble similar to that located just below it in level and at N 1260 W 750.

24477

N 1200 W 765 Gedge of chert and at

N 1260 W 770 we get cherty marble overlying chert bed.

N 1165 W 750 Bluff 20 ft high of very cherty marble. Chert seems almost to predominate.

Chert bands very much contorted. Same again at N 1126 W 750 and at

N 1080 W 730

N 1080 W 750 Heavily bedded chert. Seems to dip about NE.

N 1015 W 750 Gedge of pink marble.

XVII

CofS

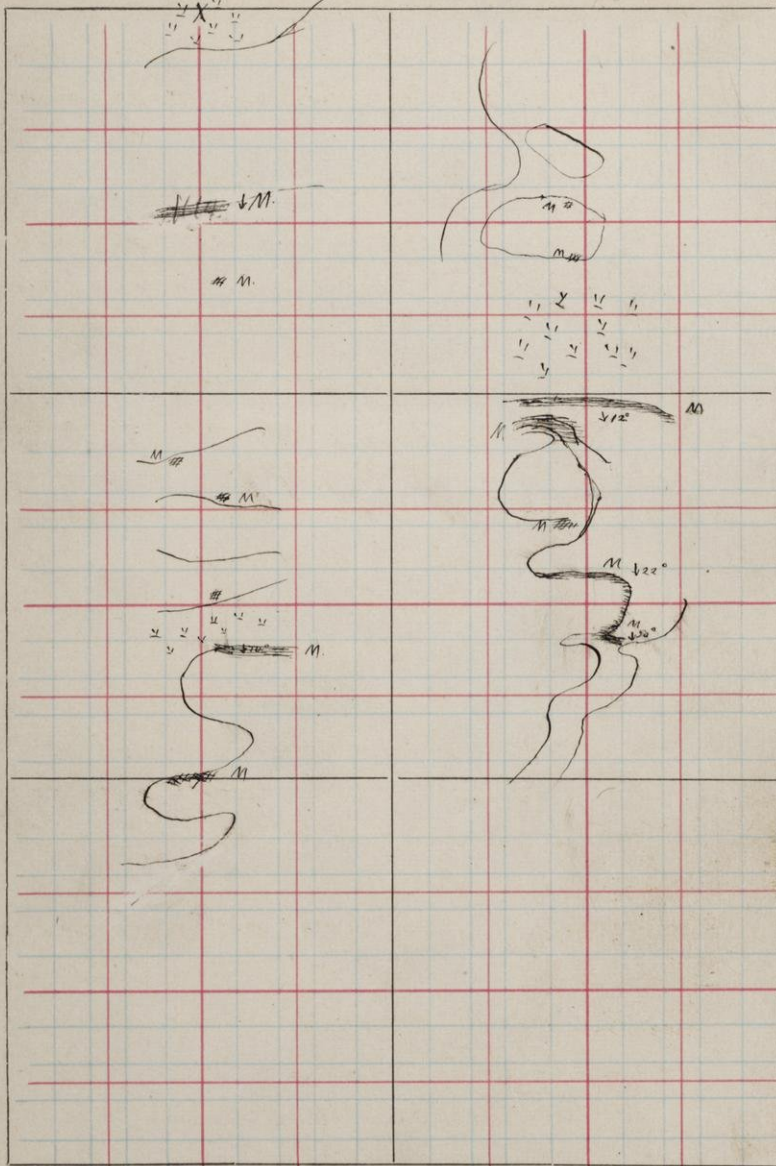
SE 1/4

S. 7

T. 47

R. 25-

E 1/4 P



Map XXIV

S18-47-25. Location from SE Cr.

In the SE 1/4 of S18 we seem to be going along the E. slope of a rather high hill and gradually descending.

N977W750 Knob of cherty marbles.

24478-9

N832 N765 Outcrop of purplish + reddish slaty limestone + calcareous slates. (24478) Strike SW. Dip 8° about SE. Underlain by a cherty or quartzitic limestone. Conformably.

N780 W785 Outcrop of same slates + marbles.

Dip 15° NE.

N730 W750 Outcrop of contact cherty marbles.

24478-91

N220 W755 Purple slates (244783)

24480

N670 W675 First ledge of quartzite in rounded outcrop.

N620 W750 Ledge of quartzite.

24481

N620 W670 Large quartzite outcrop upper part finely banded with red + black bands. Strike about NW. Dip 20° NE. A narrow valley upsets the outcrops of marble + slate from the quartzite outcrop.

~~N670 W750~~ We are now going along the top part of a steep cliff about 30-40 ft high. Below is quartzite. Where the top begins to get smooth and run back to the E we get line of contact between the quartzite and marble series. The strata are somewhat contorted so that we get

XXVII

N $\frac{1}{4}$ P

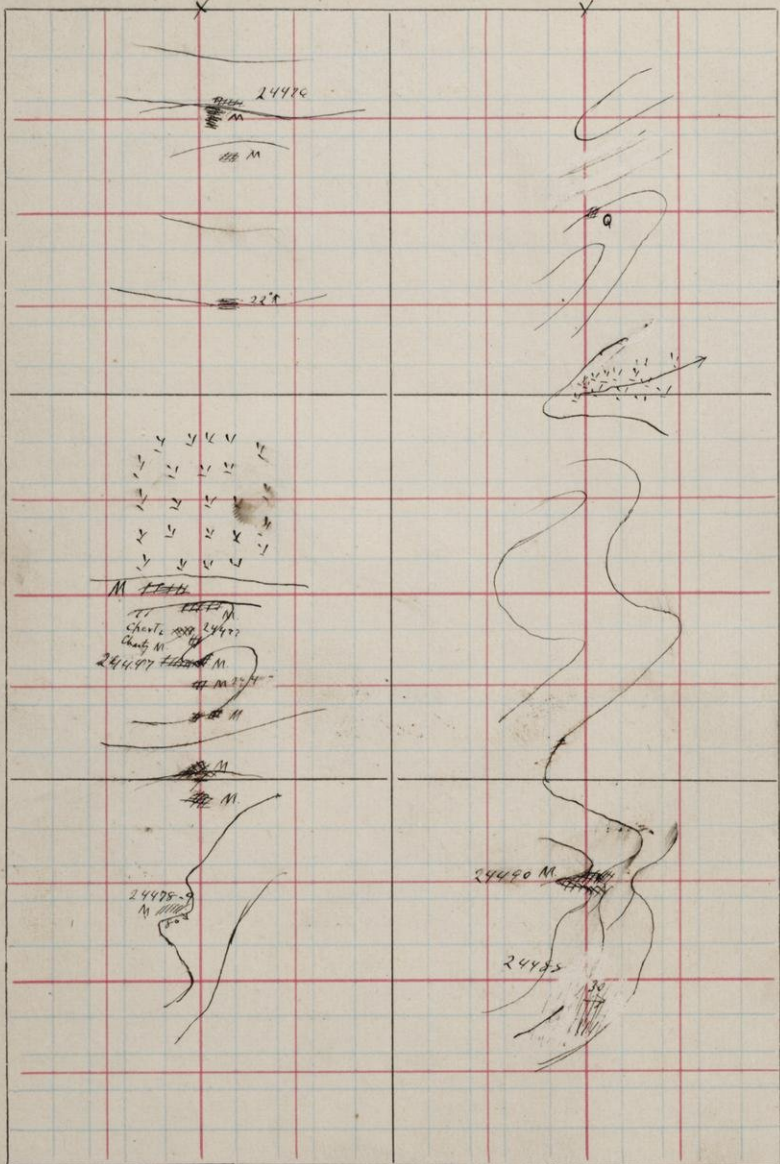
S. 18

T. 4P

R. 25

NE
Cor

NE $\frac{1}{4}$



CofS

E $\frac{1}{4}$ P

varying strikes & dips. In general the dip seems to be about 35° S. little the S of E. Marbles occur by the quartzite so that we get E side of hill of marbles and also southern extremity part of hill goes at edge of sand plain.

Hill is almost a continuous outcrop of both quartzite and marbles. East is covered in places. Specimens for me taken from the locations given below.

Quartzite forms highest point of hill at about N 570 W 225. Below this outcrop the marbles.

24482-4 N 520 W 740 Contact of quartzite and limestone.

Strike of banded quartzite $E 10^{\circ} N$. Dip 70° S of W? (Think I must have made some mistake in my notes, here for I remember very distinctly that the dip of all the beds was about 9° E.)

Marbles strike about 10° N of E, dip 60° SE.

We have at bottom a cherty quartzite followed by bed 4 ft thick of red and black banded (Chert?) quartzite (of 24481). Then there is a stratum of grey slate 5 inches thick

24482 followed by a ^{red pinkish quartzite} cherty rock 6 inches thick, 3 inches of green altered contact band, 24483 which becomes slaty where it is in contact with the purple limestone (24484) 1 ft thick above. Marble follows this and then the

XXIV

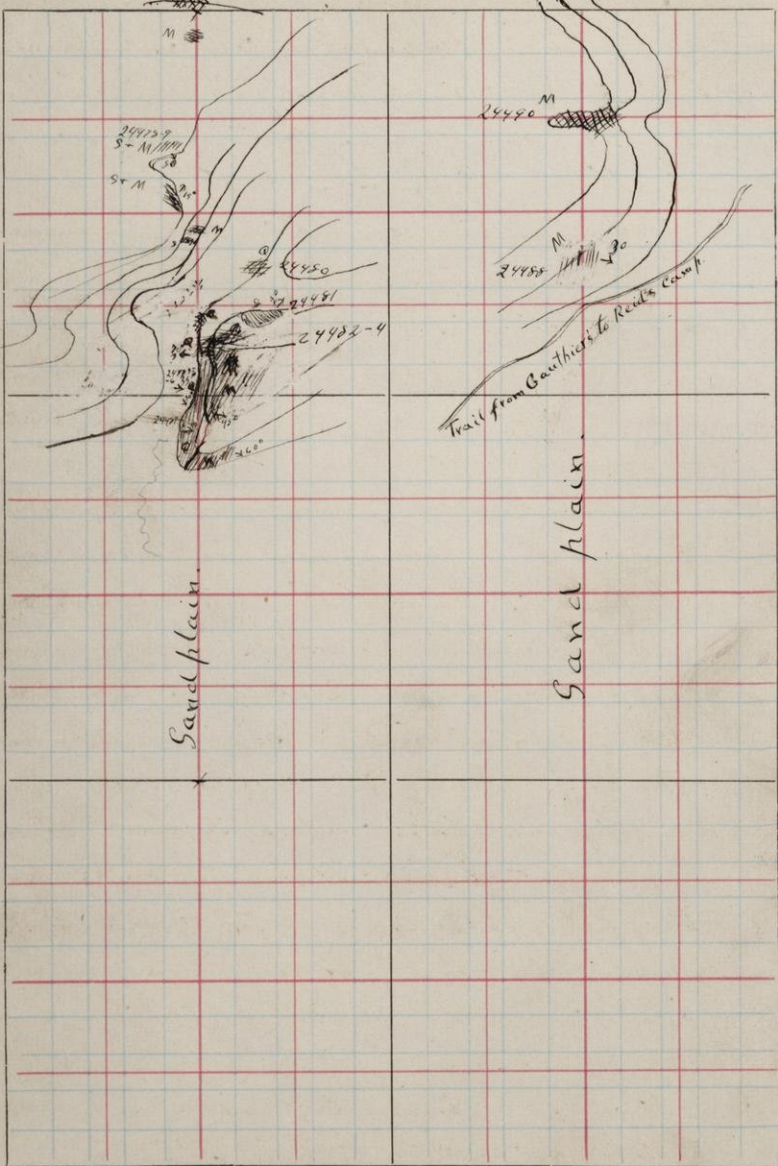
S. 18

Cof S

T. 47

R. 25

E/4P



Sand plain.

Sand plain.

S 1/4 P

SE
Cor.

24485-

series of cherty marbles, slates and calcareous sandstones. Banded chert seems to get thicker towards the S. N 5-40 W 75-0 Another point at which the contact can be seen but not so well as at the other. Specimen from contact.

Strike about N. Dip 35° little N of E. Strata are slightly undulating here.

24486

N 540 ^{W 75-0} Specimen of one of the black slaty bands in chert. N 510 W 75-0 Outcrop of the banded chert & slates

Strike about NE? Dip 30° SE. Folds in the strata are very evident.

N 5-00 W 73-5 Edge of marble outcrop. Strike NE. Dip 45° SE

N 475-W 72-5. From here on down hill to S. marble outcrop.

24487

N 475-W 74-5. Banded chert (above quartzite) shows again but distorted. Shows nicely small fault of 1 ft. Below it is a bed 8 ft thick of quartzite with pieces of greenish yellowish rock in it. Seems to be mostly local. Partly a quartzite congl. though I did not think so. Continues for about 30 paces and then we see the cherty bands & slaty bands lying on the usual cherty quartzite without that rock. Dip of black slates 40° E Strike N. Location is N 455-W 75-5.

N 430 W 720 Marble outcrop here again. 4 ft

Strike about 25° E of N. Dip 60° S of E.

Map XV

Began run from road at location given by Bagley N 120 W 250 from SE C. 56 47-25. Level woods, no outcrops.

Map XVI

N 200 W 250 from SE C. 57-47-25.

Descending hill we come to swamp and come out on road (Rids log road) at edge of swamp near old camp. Then ascend hill and get small schistose quartz exposure on N side of hill at

24489

N 15-60 W 200. We now begin descending to S. and crossing valley find outcrops at foot of high bluff cliff (40 ft high) of contact marbles + limestones. At N 1150 W 890 begin ^{small} marble outcrops which continue almost without interruption & around the hill & N 1100 W 140. We now cross ridge with no outcrops - running about W - and then get into comparatively level ground covered with hardwood. Get small outcrop of marble ~~at~~ ^{near}

Map XVII

N 768 W 270 from SE C. 57-47-25 on N side of a low ridge. Another outcrop on end of hill at N 700 W 265. After crossing swamp we come at N 495 W 250 to cliff (20 ft high) of marbles and purple limestone (this predominates) capped by bed of variegated marble. Outcrop extends for about 100 ^{ft} ^W E. around hill and for 40 ^{ft} ^W W. Strike E. Dip 12° S slightly E.

N 47° W 280 Purple limestone ^{in thick bed} outcrops again forming knob S W of line.

N 360 W 245 Edge of purple limestone

N 285° W 250 This comes to ledge of hard ^{purple} cherty limestone. Strike N 45° E Dip 22° ^{to the west}

Strata much contorted in places. Weathered surface white with prominent bands of pink chert. Outcrops with very little interruption around hill E side of hill.

N 190° W 225 Same marble again. Strike same W of N Dip 50° about 20° E of S.

Map XXIII

In S. 18-47-25 we are going S along E. slope of hill. Get small outcrop at N 1745° W 248 from SE Cr. S 18-47-25 of purple quartzite. Get no more outcrops in this 1/4 of S 18 but in 3/4 at

Map XXIV

24490

N 875° W 250 from SE Cr. S 18-47-25 come to narrow gully with marble showing on both sides. Seems to dip to the E perhaps little S.

N 697° W 250 Edge of marble.

24488

N 665° W 250 Edge of red ^{+ white} mottled limestone (stately)

Appears in several small flat outcrops here. Dip seems to agree pretty closely with direction of slant of hill. About 30° to E is dip taken on a ledge at N 600° W 250.

From foot of hill sand plain extends S. E. Run N S line then E to Cr. & E of it 250 paces.

XIV

22.

17

T.

47

R. 25-

S 1/2 of

NW 1/4

w 1/4 p

SW 1/4

SW Cor

6—747

5/4 P.

Send plain
continues to
N section line of
SX-97-25.

Trail from Gauthier's to Reid's Camp.

Col S.

↑ 32K slightly E of N.

$\uparrow 35^\circ \text{E} - \uparrow 10^\circ 5^\circ \text{E} \text{ y } \lambda$

↑ 85° 5' E of N

Marbles, stipes & C. curvius
Sandstone. Small bed of Cochl.

Sandstone. Small bed of Coogl

Sandflair.

Map XXV

Started in sand plain at W1750 from S.E. Co. S17-47-25 and ran N over undulating sand covered ground showing no outcrop until we reach foot of hill composed of marbles, slates etc. at N415 W1750. We pass over a continuous outcrop of about N600 of marbles, slates, calcareous sandstones, etc. The strata are very much cut up by erosion so that I could not get General Strike of the beds is about E with dip about 35° 5° E of N.

24491-2-3

N425-W1750 Look strike E, dip 40° slightly E of N. Taken on fresh bedded cherty marble beds, (24491) Underlain by a bed of slaty limestone and then followed by a inch of purple slates (24492) Very prominent among the beds is a cherty marble, 15-ft thick, (24493). Weathered surface white with pink chert bands. This is overlain by a purple limestone striking E, dipping 38° little E of N, followed by a calcareous quartzite and then a slaty limestone again. Strike E. Dip, 35° little E of N. Average dip of beds $37\frac{1}{2}^{\circ}$ little E of N. N440 W1750 Bed of Congl. (Bayley has specimen, and I have forgotten no.) extending to W into Bayley's run 9th E

N 49° 5' W 1750 Small ~~knob~~^{out} of cherty marble standing by itself in small valley, marble takes all around, it is only a single bed of marble with cherty bands through it. Seems to be a small anticline with axis dipping about NW 15°. Underlying it is a ~~few~~ thick bed of reddish slaty limestone. Strike E. Dip 30° N.

N 51° 5' W 1750 Outcrop of cherty marbles and thin calcareous sandstones. Dip 35° little E of N. strike E.

N 52° 5' W 1710 Bed (15 ft. thick) of purple slaty limestone. Dip 30° 5' E of N. Strike E.

N 54° 5' W 1750 Cliff of marbles. At base (very bed (20 ft thick) of cherty reddish marble followed by bed 3 ft 1/2 thick of purple limestone overlaid by bed of pink cherty marble. Then bed of bluish slate + slaty purple limestone 20 ft thick.

Bed of cherty marble 15 ft.

Bed of slaty limestone and calcareous sandstones and cherty marbles in thin beds for 20 ft. Dip 20° about 5° E of N. Taken at N 58° 5' W 1680 from SE Cr. 517-42-25

N 63° 5' W 1765 Near middle of valley is small outcrop of cherty limestone. Dip 20° little E of N. We now begin to ascend high hill & is covered with sand & and with outcrops showing on top.

Outcrops on top dip δ SE + E. The valley at N635 seems to be in a syncline.

Outcrops on hill ahead seem to be all of the same marble etc as those found at edge of plain from N415-N600.

N770 W1795 Purple slaty limestone δ strike N. dip 6° E

N770 W1750 Edge of slaty limestone underlain by cherty marble. Dip 20° E. Strike N.

N850 W1725 Outcrop on top of low knoll of flesh colored marbles and slaty limestone (or calcareous slates). Dip 20° about SE. Strike NE.

N910 to W1750 Outcrop of calcareous sandstone and purple calcareous slates. Dip 20° SE. Strike NE.

N930 W1750 Small ridge of flesh colored marble and δ underlain by ^{exposed} cherty slates (calcareous).

N931 W1805 Edge of a kind of bay cut into hill. On sides marbles + slates outcrop in places. Dip at location 22° about 25° of S. δ

N992 W1775 Last outcrop on crest of hill of cherty marble. Hill drops abruptly for 90 ft then for 100 ft more gentle slope to sand plain which continues without outcrops δ N action line

XXV

W/4
P.

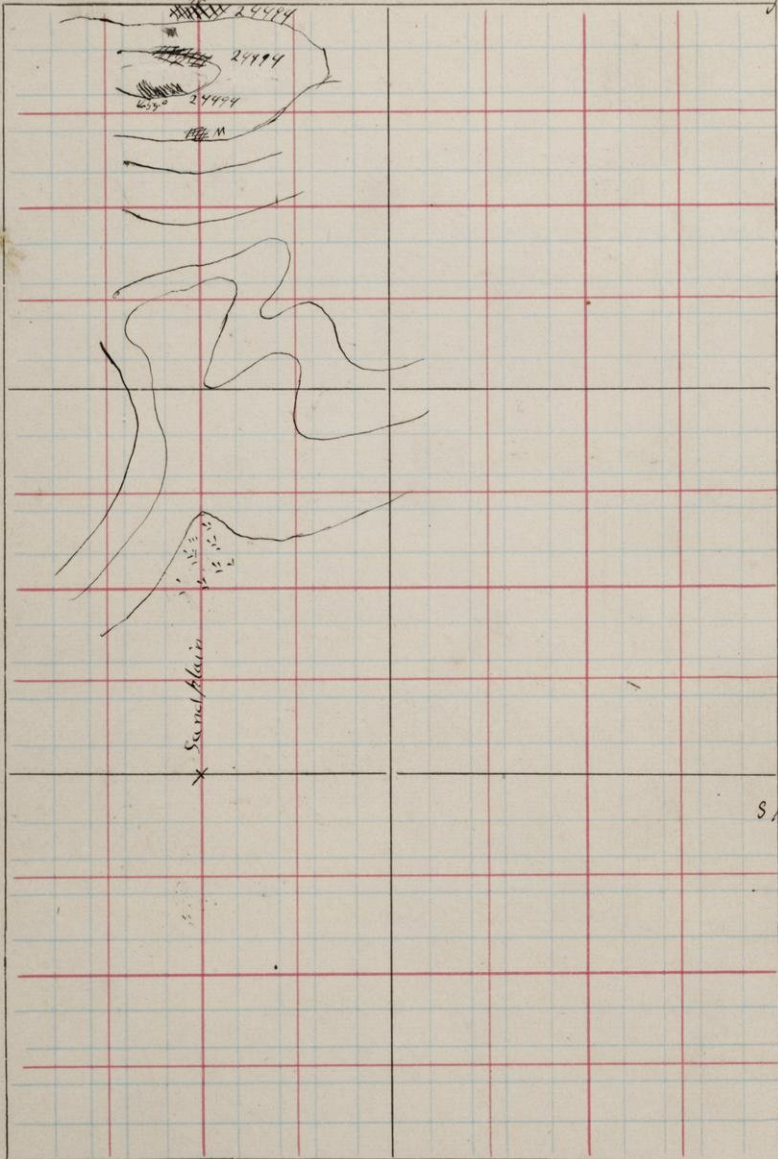
S. 8

T. 47

R. 25-

C of S.

SW 1/4



Map XXVI From N.O. W1750 from SE Co. S 8-42-25 and N.
 Sand plain continues for about 200 paces
 and we then enter hardwood growth and
 ascend high hill with side covered with deep
 sand. From it first outcrop at
 N846 W1750 from SE Co. S 8-42-25 of purple
 slaty limestone.

24494 N910 W1770 Outcrop of purple limestone
 on top of hill. Dip 55° nearly SW.

24494 N994 W1750 Foot of steep cliff (20 ft high) of
 purple limestone. (24494)

24494 N995 W1750 Same marble outcrop again
 here and then for 20 paces SE + W and shows also

Map XXVII at N1015 W1750. We are now going down N
 slope of high hill, purple limestone continues
 & outcrops at

N1045 W1750 Dip 10° little W of S as well as N.E. & S.W.

24495 N1160 Cliff of marbles with dips of greenstone
 (24495) cutting through them. Dip 10 ft across.

N1250 W1730 Small ledge of marble.

N1275 W1750 Cross terrace of slate colored slaty
 limestone.

N1485 W1750 Wagon Road.

~~XXV~~

S. 8

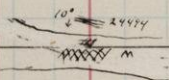
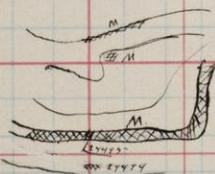
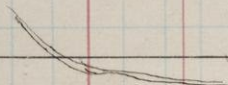
T. 47

R. 25-

N 1/4 P.

NW
Cor.

NW 1/4



N 1/4 P.

Cos

XXVIII

S. 5-

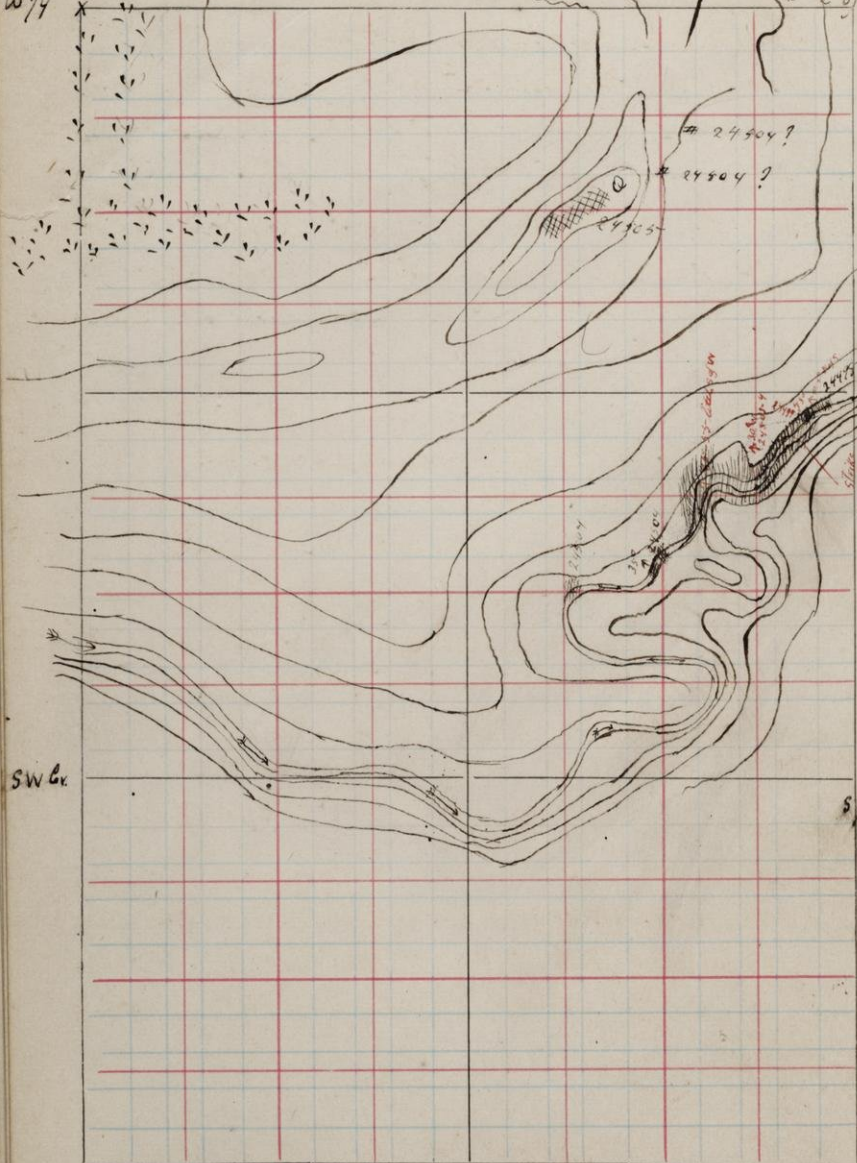
T. 47

R. 25-

24496

#? C of S

w/4



SW 64

S 1/4 P.

- Map XXVII From W $\frac{1}{4}$ P. S 5-47-25 run E through
hardwood with no outcrop until at
24496 N1025 W1080 from SE cor S 5-47-25 - get small
quartzitic outcrop on hill side. ^{In situ?} We now begin
to descend drift hills or rather drift
terraces to Corp river and here end run to E.
Map XXIX N1000 W625 - Corp River. I make terraces of
the SW $\frac{1}{4}$ of S 5 - every 250 feet + measure
river.
W750 N770 Corp River which flows between drift banks.
24497 W825 N655 - Small outcrop of quartzitic slate.
Strike 30° E of S. Dip 50° to W 30° S.
W850 N590 Corp. W1100 N480 Corp.
24498 W1035 N490 Here on N bank of river begins
outcrop of ^{green + reddish} slates which continues without
interruption around river to W1180 N325 -
At E. end of outcrop slates are so broken
that can't get strike etc but take it at
W1055 N475 - Strike 5° E of S. Dip 43° to W. 5° S.
Slates here have cleavages running SW, 25° S of E
and one ^E nearly horizontal. Seems to be the same
slates as those found further W in SW $\frac{1}{4}$
S 31-48-25 at N370 W1585 (24418-19-20) and
also between these two points.
24499 W1080 N475 Green slate.
24500 W1075 N470 Small bed 3 ft thick in slates of a
sandy member. At top of bank it is very

XXIX

Cos

S. 5-

T. 47

Cap.

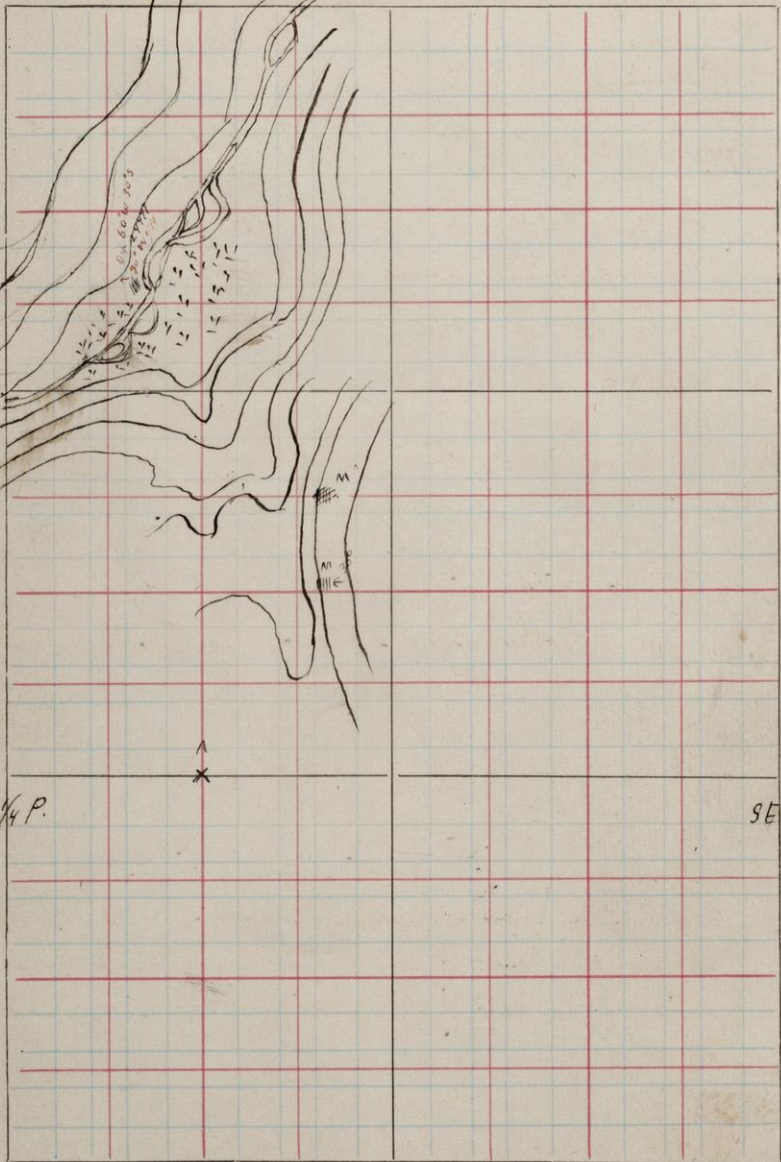
R. 25-

E 1/4 P.

Cap.

S 1/4 P.

SE Cov



rotten and more or less impregnated with iron.

- 24501 N 445° W 1075 - In bed of river quite fresh slate outcrop and from falls. Strike 14° E of S. Dip 30° ^{15° S} W
- 24502 N 440° W 1095 - Peculiar sandy rock forms bed 8 ft thick in slates. All along bank
- 24503 I find a red slate apparently same as green slate except in color. Is it alteration or primary?
- 24503-4 N 415° W 1125 - Slates both green (24504) + red form tongue around which river runs. Strike N. Dip 30° W. Slate continues to outcrop & W. along river. Now run N over drift hills with no outcrop to 1/4 mi. Now turn W to S 1250 + then S to river.
- 24504 N 845° W 1210 Very small outcrop of green slate and
- 24504 N 755° W 1242 Same kind of slate again. In situ?
- N 310° W 1250 Few small ledges of green slate here in river bed.
- N 415° W 1190 At this point in the slates there is a slight undulation + the dip varies from $45-55^{\circ}$ little S of W. Slates form high cliffs here (40 ft high) + rapids in the river
- N 265° W 1260 Same slates Strike NE. Dip 35° N of N.W.
- N 260° W 1355 Outcrop on banks in river of ledges of green slate. Not sure of strike.

XXX

S. 8

VW 1250

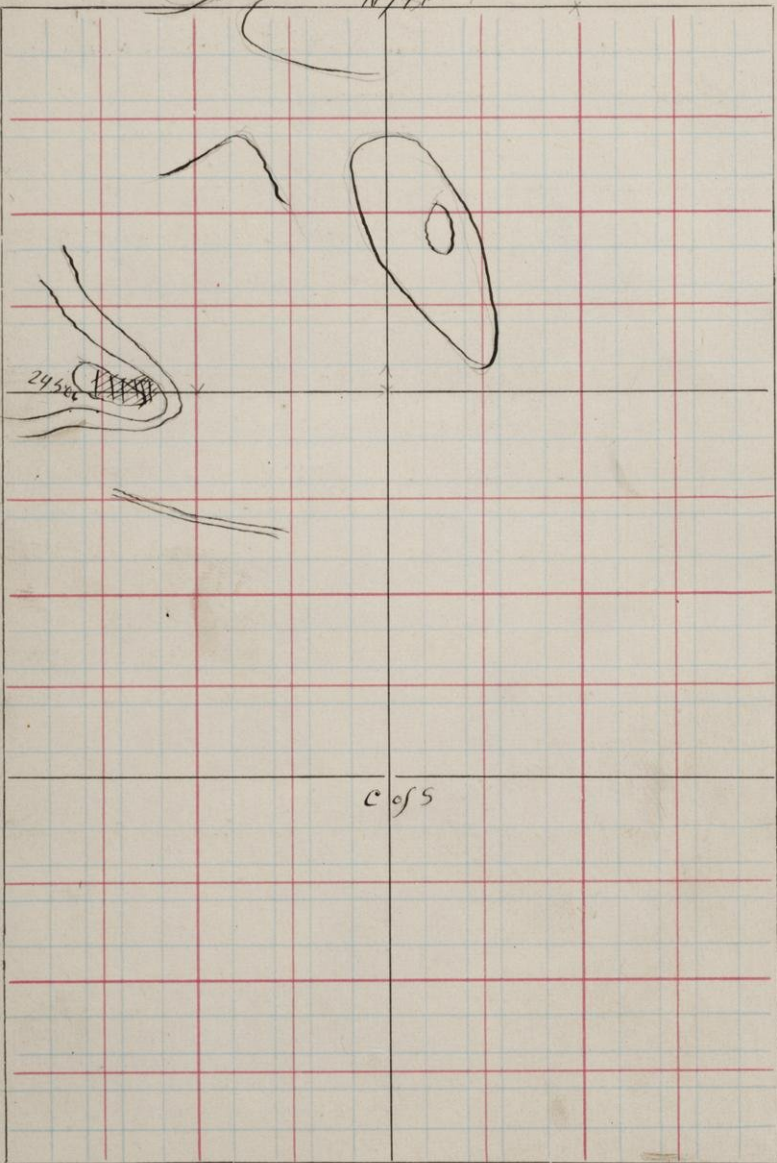
~~T 40~~

R. 25-

N 1/4 P

NW 1/4

NE 1/4



24505- N 725 W 1390 Large ledge of quartzite,
(N 1940 W 1500 from SE Cr. S. 8-47-25 - Cap. River)
N 20 W 1750 Cap. River.

The outcrops in SW $\frac{1}{4}$ S. 8-47-25 are almost without exception confined to the banks of the Cap. N. of the river are high hills apparently of drift and heavily wooded giving only the few outcrops located above.

Map XXX

From N 2000 W 1250 from SE Cr. S. 8-47-25 run S. Start from S bank of Cap and go S over comparatively level ground covered with hardwood. At

24506

N 1460 W 750 we come to E end of hill extending to W and with quartzite 24506 outcropping on it.

N 1335 W 1250 Wagon road.

Now run E to W 1000 + then N to S line, then E on S line to W 750 + N.

note

Map. XXIXFrom W 750 from S E Cor S 5-47-25-
ran N. AtN 260 W 5-90 we find very small outcrop
of marble on W side of burned over hill.Strike N. Dip 35° nearly due W as well as can be
told on exposure.

N 370 W 5-90 Outcrop of same kind of marble.

N 710 W 750 Corp. river. Running ^{across} the ~~between~~
small islands.Now run S 60 and 9 on $\frac{1}{4}$ line, then
N & river again on W 1250. No outcrops
except those on both banks of river
as located on Map XXVIII.

XXX

S.

5

T.

47

R.

25-

Cayh
RiverNE $\frac{1}{4}$ $\frac{1}{4}$ lineSE $\frac{1}{4}$

$\frac{1}{2}$ line
 $\frac{1}{4}$ line
 $\frac{1}{8}$ line
 $\frac{1}{16}$ line
 $\frac{1}{32}$ line
 $\frac{1}{64}$ line
 $\frac{1}{128}$ line
 $\frac{1}{256}$ line
 $\frac{1}{512}$ line
 $\frac{1}{1024}$ line
 $\frac{1}{2048}$ line
 $\frac{1}{4096}$ line
 $\frac{1}{8192}$ line
 $\frac{1}{16384}$ line
 $\frac{1}{32768}$ line
 $\frac{1}{65536}$ line
 $\frac{1}{131072}$ line
 $\frac{1}{262144}$ line
 $\frac{1}{524288}$ line
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 $\frac{1}{2097152}$ line
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 $\frac{1}{1073741824}$ line
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Map XXXI

From N. O W 400 from SE Cr. S 5-47-25-
ran north.

On S end of hill outcrop of pink and bluish
marbles on which I can't get good strike; outcrop
at N O W 400.

24508 N 35 W 455 Outcrop of coarse grained eruptive
forming small knob.

24509 N 75 W 455 Higher upon hill than the eruptive
appears a quartzitic member of the marble
series. Strike about N. Dip 35° little S of W.

N 80 W 435 Fresh colored marble outcrops underlying
quartzitic bed (24509).

N 80 W 425 Here we get a purple limestone bed
underlying fresh colored marble. Strike N. Dip 39°
slightly S of W.

N 80 W 370 Outcrop of same eruptive rock (24508)

N 80 W 345 Outcrop of marbles. Just on S end of
hill marbles outcrop every few paces.

N 160 W 340 Outcrop along hill of pinkish, fresh
colored marble bed.

N 265 W 495 Cliff running little W of S (for 50
paces + 20 ft high) of purple + fresh colored marble
Strike N. Dip 35° W.

N 200 W 350 Small ledge of marble.

N 295 W 400 Large ledge of purple + fresh colored
marble Dip 40° W. Strike N.

N 350 W 400 outcrop of same purple marbles + at

N360 W 425 - we come to ~~into~~ N end of outcrop of
pink purple and flesh colored marbles
continuing to base from N265 W 495.

Strike N. Dip 40° W.

N394 W 380 Small ledge of purple marble.

We are now descending hill covered with
hardwood ~~with~~ which goes down to Cophair.
Get outcrops here & there of marble beds
through the woods.

N394 W 395 - Very small ledge of purple marble.

N420 W 425 Purple marble outcrop.

N515 W 465 - Outcrop of flesh colored marble
below - at lower level but not showing
contact - purple for marble. Strike N. Dip 40° W.

N570 W 470 Same marble shows again across
small valley through which old log road runs.

N675 W 400 Ledge of marbles. Strike N 2° E. Dip 35° ^{of W} E.

N735 W 400 Cliff (30 ft high) of calcareous
sandstone & purple limestone. Strike NW. Dip 40° SW.

Now get no more outcrops but descend over
drift until we reach Coph River at N1242 W 400.

24570

N1220 W 440 Outcrops in bed of river and along
bank for a contorted pink marble.

From W 400 N1200 run E & S line over
rough drift hills, no outcrops showing
except along river at following locations.

N1292 W 200 For about 60 paces on either

side of location we see ragged outcrop
in bed of river of marbles. at
N1317 W160 there is a large outcrop of
contorted cherty marble which deflects
river to N. Marbles continue to outcrop
in river bed but at

- 24513-14 N1450 W110 in river bed we find slates &
slaty limestone (slates predominate). Are
not rare of the strata etc. but they seem to
underlie the marble which outcrops on bank
near them. Schistosity strikes 5° S of E nearly
up and down the river.

Then slates continue to outcrop in river to
E and at

- 24512 N1470 W0 (Carp River) we get the slates
forming falls in the river and high cliffs
30 ft high on both banks. Slate is apparently
a slaty chert. Cleavage breaks up in pieces
very easily. Seems to have been very much
crushed, pressed. Outcrops for at least
150 paces to E along river.

Many locations were
skipped & mine were
changed on map & agree
with this

We now run S on section line 5/4, location
given from S.E. cor. 55.

- 24512 N1380 E40 (in S. 4) very small outcrop of slaty
chert. (cf 24512)
- 24511 N1272 E20 Quartzite outcrop (in S. 4th?).

etc.

For some distance the line runs over drift and then we get into a large valley running nearly N-S and follow that for nearly $\frac{1}{2}$ mile. To the W outcrops in a high cliff for nearly the entire distance purple limestone and the variegated cherty marbles of the marble series.

Map XXXI

24515-16 Location from SE Cr. S 5-47-25-

N 615-W 120 Cliff 30 ft high of purple limestone and variegated cherty marble.

Strike N. Dip 25° W.

24517-18-19. N 375-E 75 (in S. 4) Hill with pretty good exposure of calcareous slates, quartzites & slaty cherty slates. Strike NW. Dip 30° SW.

24517-18-19. N 225-E 30 (in S. 4) Cliff of same ^{series of} slates 40 ft high. Strike slightly E of N. Dip 30° little W of S.

N 185-W 140 Outcrop of variegated marble & purple and reddish limestone. 30 ft high.

Strike N. Dip 35° W. They continue with but an insignificant interruption and outcrop again at

N 30 W 110. Here 50 ft high. Strike N. Dip 30° W.

Map XXXII

From NE Cr. S. 8-47-25 We continue down S. through valley. Locations from SE Cr. S. 8-47-25.

24520 N 175-E 30 Edge of quartzite runs & belongs to
note

XXXII

S. 8/9

T. 47

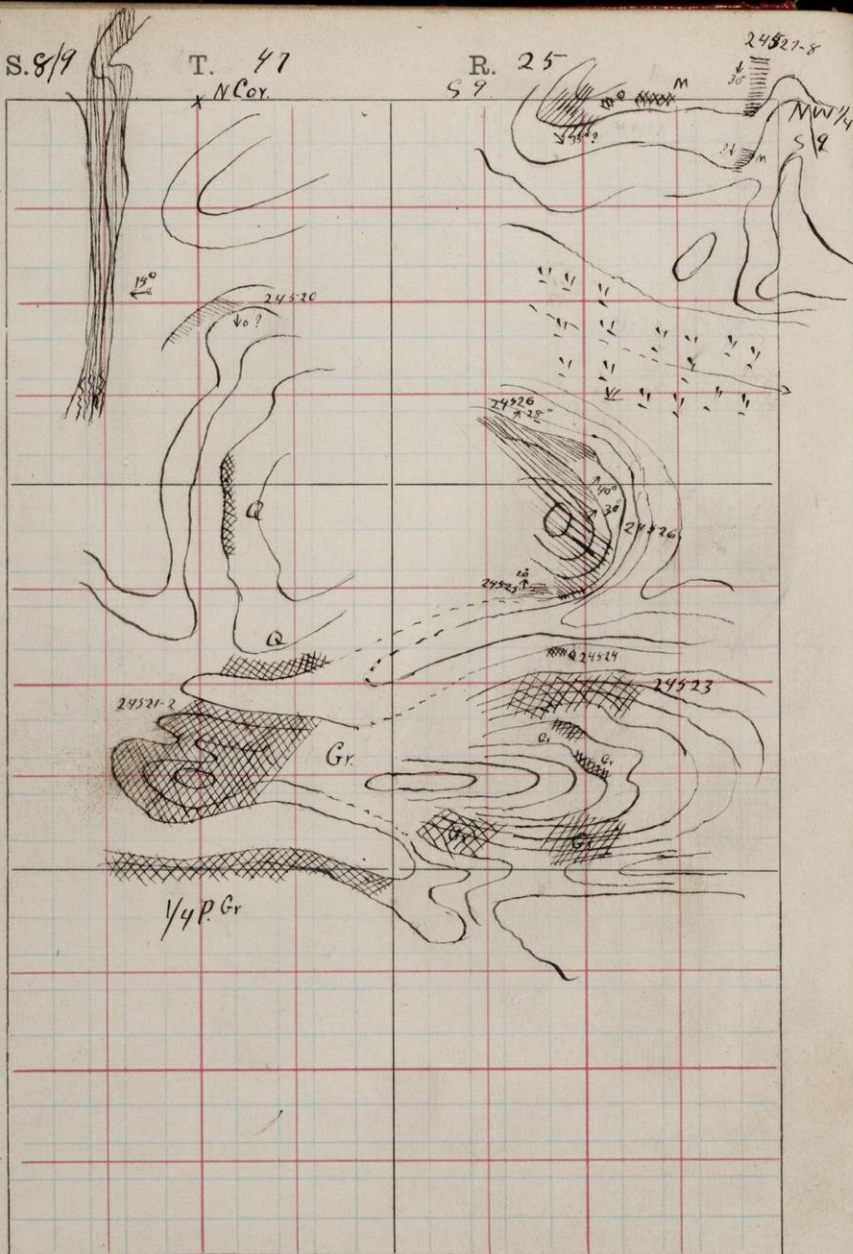
x N. Cor.

R. 25

S 9

24521-8

NE 1/4
S 8



nearly horizontal here.

N775-W105 Cliff (60 ft high) of purple limestone and marble. Strike N. Dip 15° W.

Cliff runs almost due S. for quite a distance. I only followed it to N625-W135. Here ~~the beds~~ ^{the beds} were quite contorted.

N525-E35 Quartzite ledge. Appears again at N275-E35-70.

N225-E60 We now cross valley with ^{to Reid's Camp} log road running through it and begin to ascend at N225 a hill of granite. Took specimen at

24521-22 N225-E60 of granite (24521) cutting a hornblende schist (24522). Rock appears in small outcrops all over hill especially around hill to W. the outcrop is a continuous one of granite.

We cross this granite hill descend and cross narrow valley with log road to Reid's Camp then ascend steep granite hill again and find 1/4 foot just on edge of hill.

Though looked carefully could not find contact of granite and quartzite.

Map XXXVII

From this 1/4 P. W. 1/4 S 9-47-25 on edge of granite cliff ran E along cliff then down and around valley to S of very high granite hill. From 1800 W 1000 N of SE Cor 9-47-25 ran N over granite hill, took at

N100W 1500 Gr.

N120 W 1485 Gr.

N180 W 1520 Gr.

24523

N1205-W 1540 outcrop all over N face of hill of peculiar greenish phase of the predominant red granite.

We descend hill with large talus and at

24524

N1285-W 1540 get small outcrop of pinkish quartzite. Near this outcrop found block of congl. but could not find the congl. in situ.

24525

N1872 W 1540 Small outcrop of banded ^(schistose) slaty chert. Can't get relations to quartzite which outcrops to N + S. Strike slightly S of E. Dip 20° ^{little E of N}

N1360 W 1525 Here begins to outcrop a white quartzite which forms little forth to N high low knobs and continues to outcrop N 55-5 + N 57.5-W 1620. General strike NW.

Dip about 35° NE. Strike and dip taken at N 46.5-W 1500 strike NW. Dip 30° NE.

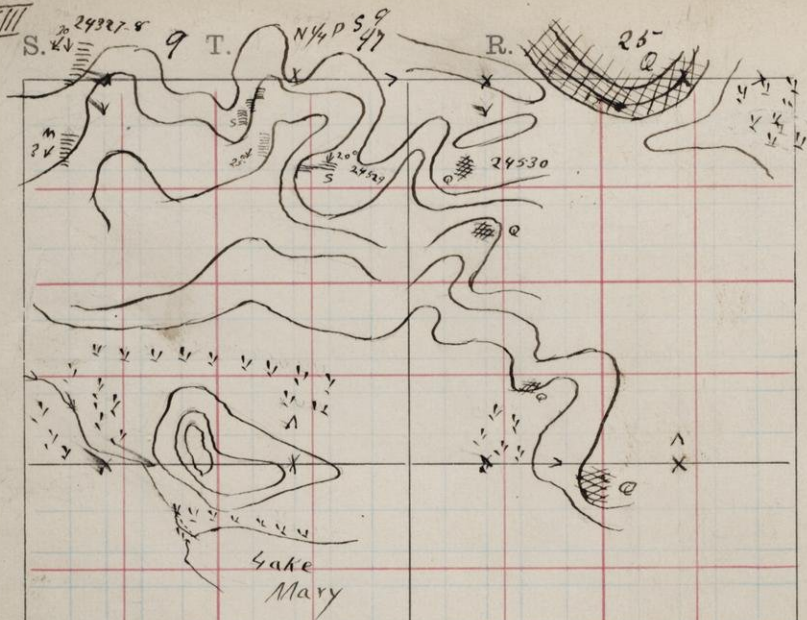
N 570 W 1590 strike NW. Dip 28° NE.

24526

N 482 W 1500 strike NW. Dip 40° NE.

Leaving quartzite we cross swamp and now S. line begins to ascend hill with outcrops of marble, + calcareous quartzite all around. N 94.5-W 1500. Strike NE. Dip 35° SE?

XXXIII



x
C of S. P.

Map XXXI-M Ran E along N. S. line of S-P-47-25-

N2000 W 1475 from SE Cr. S-P-47-25; ^{small} outcrop of small quartzite bed. ✓

N2000 W 1425 Edge of purple limestone.

245-27-8 N2000 W 1270 Quartzite bed 4 ft thick (24527) underlain by calcareous sandstone (24528) (or quartzite). Strike slightly ~~E of N~~ ^{N of E} Dip 30° ~~little~~ W of S.

plumbe

Ran S on line W 1250 from SE Cr. S-P-47-25-

N1925-W 1290 Edge of marble. Bottom of dip. Seems to be little W of S. No outcrops to N 1500.

From N 1500 ran E 250 paces then N on 1/4 mi. N 1420 W 1000 Lake.

245-29 N1900 W 1000 Edge of bluish (calcareous?) slate strike E slightly N. Dip 20° little W of S.

N1930 W 1025- Edge of same slate. Dip 25° about S.W.

N1960 W 1050 Outcrop of same slate ledge higher up on hill side.

N1975 W 1040 Same ledge. Under this on side of hill small outcrop of ⁽²⁴⁵¹²⁾ slaty red slaty cherty slate. From 1/4 P ran E 250 paces then S.

245-30 N1900 W 758 Purple quartzite in small outcrop with slate in ⁽²⁴⁵³⁰⁾ upper portion. Can't get strike etc.

N1825-W 750 Quartzite outcrops. Blocks of a slate like (24512) lie above it.

N1625-W 700 Edge of white quartzite.

N1475-W 625- Knob of white quartzite.

Ran N from N 1500 W 500 & get no outcrops ✓

XXXIV

S.

9/10

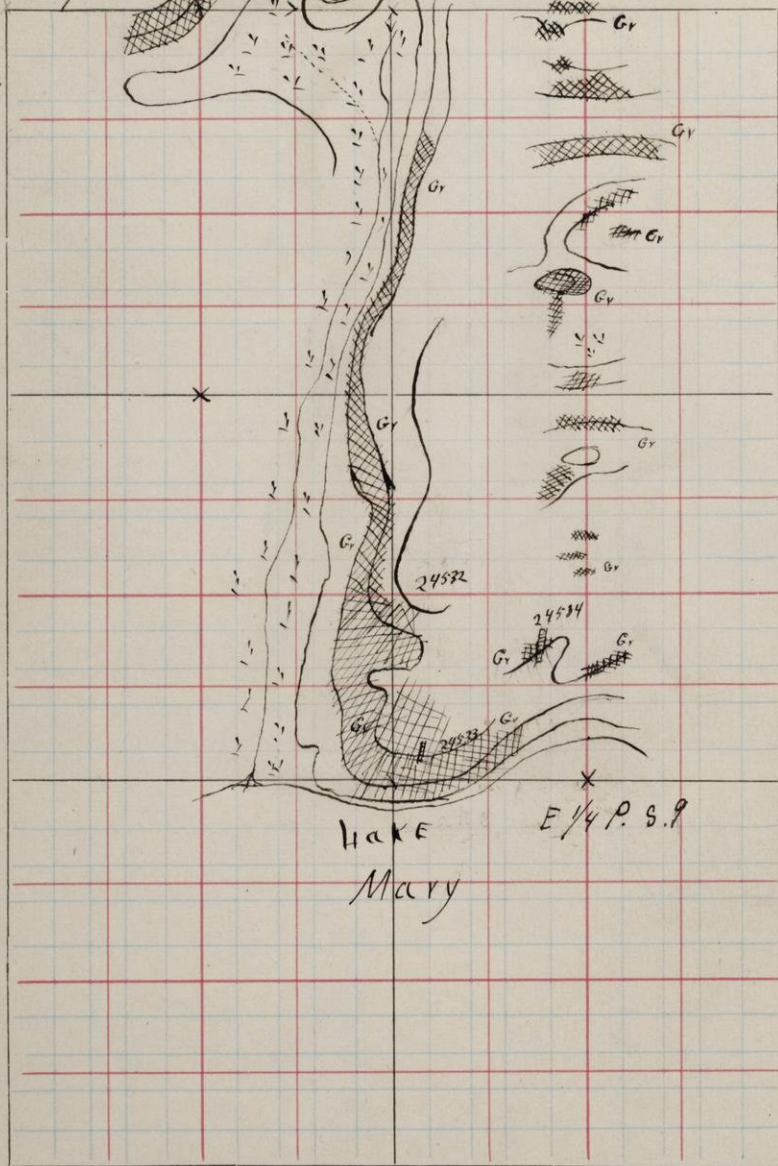
Q.T.

47

Gr 24531

NE
R. 25- Coy S 9

NE 1/4



Map XXXIII-IV until just before reaching N. S. line. Head at N1940 W 500 is a large knob of white quartzite extending to N + W. (NB. At another time got strike + dip when making run from N.) Ran E across small marsh and at

24531 N25 W 340 from SE Cr. S-9-47-25 got granite

Map XXXIV Run S from N2000 W 250 from SE Cr. S-9-47-25. Start in valley and continue in runs for some time. In about 150 paces to S we get granite outcropping to E about 40 paces on hill side forming cliff. This granite outcrop continues around hill to the lake at N975 W 250. We around granite hill at N1640 W 250 and continue over top of hills and then descend at N1280 W. Took specimen here at

24532 N1280 W 310

N975 W 250 from SE Cr. S-9-47-25, Lake Mary.

Map XXXIV Ran E along lake to section line then N.

24533 N1040 W 220 Small dike of diabase (24533) in granite

N1070 W 0 Lake Mary.

Map XXXIV Ran N_{on S. line} from lake to Cor of section.

We are going over granite the entire distance. Gr. outcrops in ledges on every hand. Give locations of ledges just on our right close to line. Same gr. as

24521-2

Map XXXIV

- 245-34 N155 Granite cliff.
 N180 W50. Diabase (245-34) dips in granite
 N225 Gr. Small gr. outcrop
 N300 W10 " " "
 N335 Granite
 N390 "
 N400 W30 "
 N440 Gr.
 N470 Granite in cliff 15 ft high.
 N528 Granite
 N580 W30 Gr.
 N640 Granite knob.
 N725 Granite ledge.
 N740 Granite
 N765 Granite
 N831 Granite cliff about 50 ft high
 N900 Granite cliff 25 ft high
 N930 W30 Small granite ledge.
 N975 W40 Granite cliff 20 ft high.
 N2000 W50 Granite.

XXXV

C of S

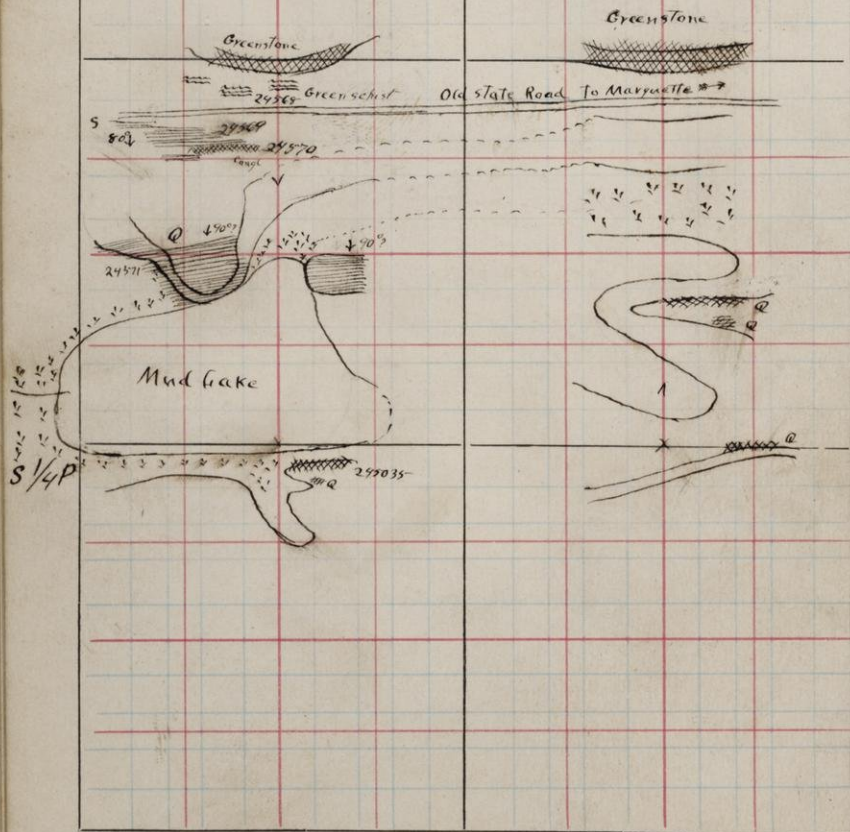
S. 29

T. 48

R. 25-

E 1/4 P

SE 1/4



Camp at Mud Lake.

May XXXV

95

24568

24569-70

24571

From W 750 N 500 from SE cor. S 29-48-25 to run S.

Starting point is on high bluff of massive greenstone. Descending we pass a zone of green schist (schistose greenstone) 245-68, then old state road to Morgan's at N 445- and continue S down slope covered with sand. At N 385 W 775 we get outcrop of a bed of congl. ²⁴⁵⁷⁰

24570 (schist fragments in sandy matrix) which followed to W runs into a bed of greenish slate ²⁴⁵⁶⁹. Strike W 8° N. Dip 80° S, 8° W. State line ^{W 910} runs to its both above & below Congl. bed (?). No outcrop occurs again until at N 240 W 910 we get greenish-yellow thin bedded schistose quartzite followed to S by ordinary pinkish quartzite.

Strike is E + strata seem to be on edge or so near 90° that I can't be absolutely sure of dip & N or S though think it is to S. Outcrop ends to S in bluff about 30 ft high dropping down to Mud Lake.

S 1/4 P of S 29-48-25 is in lake near SW cor. Lake extends on line about 5 fms into S 22-48-25.)

N 245 W 730 Here begins outcrop of same schistose quartzite (24571) + quartzite or at N 240 W 910. Met Dr Bayley here. He told me he had already worked it.

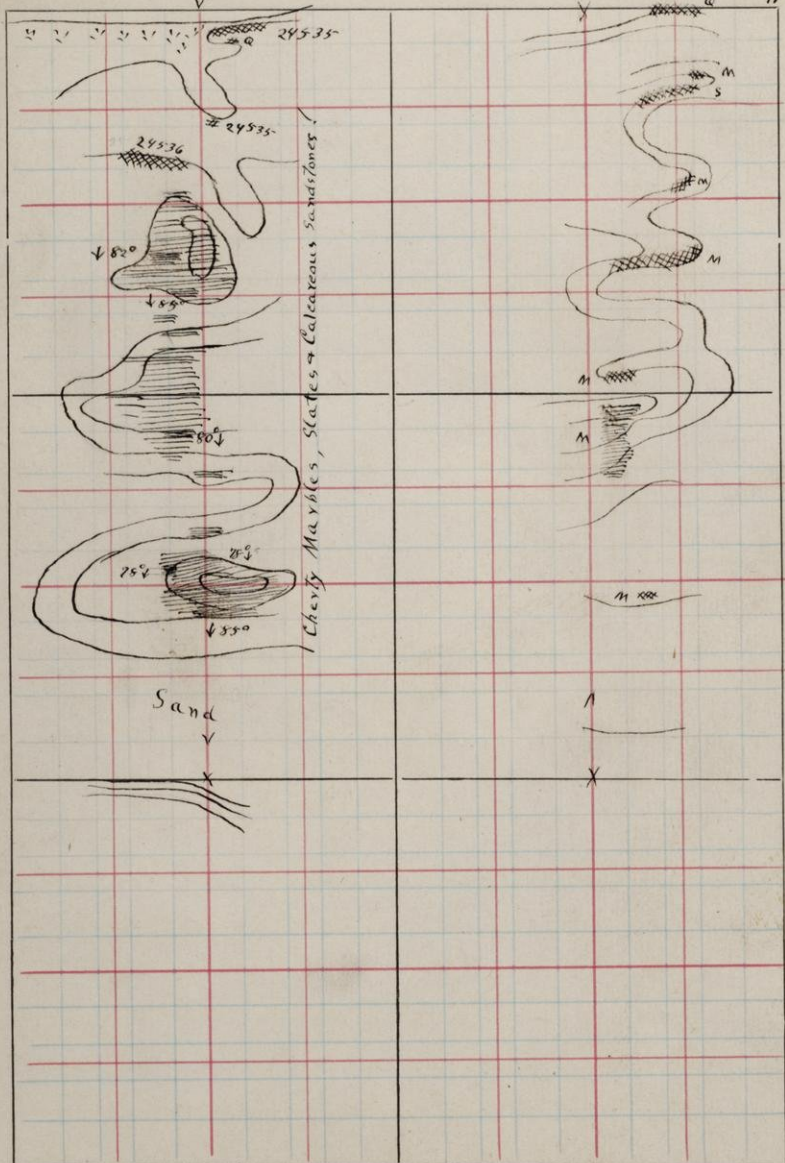
XXXV

N 1/4 P S. 32

T. 48

R. 25-

NE Cor

NE
1/4

Cgs

1/4 P

Map XXXVII N2000 W750 from SE Cr. S 32-48-25. Town S.

Section line near N 1/4 part is in mud lake for some distance to E of 1/4 P.

245-35- N1970 W 75-3 ~~Here~~ begins outcrop of diabase (?) 245-35- extending to E about 75 paces.

N1860 W 803 Very small outcrop of calcareous sandstone of the marble series.

N1860 W 730 Small diabase (245-35) outcrop.

We have been ascending hill all the way from lake and at

245-36

N1800 W 768 we come to E end of ^{ledge of sandstone} calcareous (quartzitic) of marble series. This extends to W about 75 paces. Can't get ^{thin} strike, but from trend of ledge it seems to be a bed mostly on edge & striking E.

N1770 W 782 Here, little higher up hill, we get outcrop of calcareous (quartzitic) sandstone which is on N edge of an almost continuous outcrop of cherty marbles and slate and calcareous sandstones which extends to N 1200. General strike E. dip about 80° S. Below will give locations of ledges on which strike etc was taken.

(This is evidently the same series of marbles & slates which was located in S 35-36-48-26 S 31-48-25 almost on same E & W line.)

N1670 W 782 Quartzitic bed. Strike E Dip 82° S

N1630 W 775 Marbles Strike E Dip 85° S

XXXXVII

S. 32

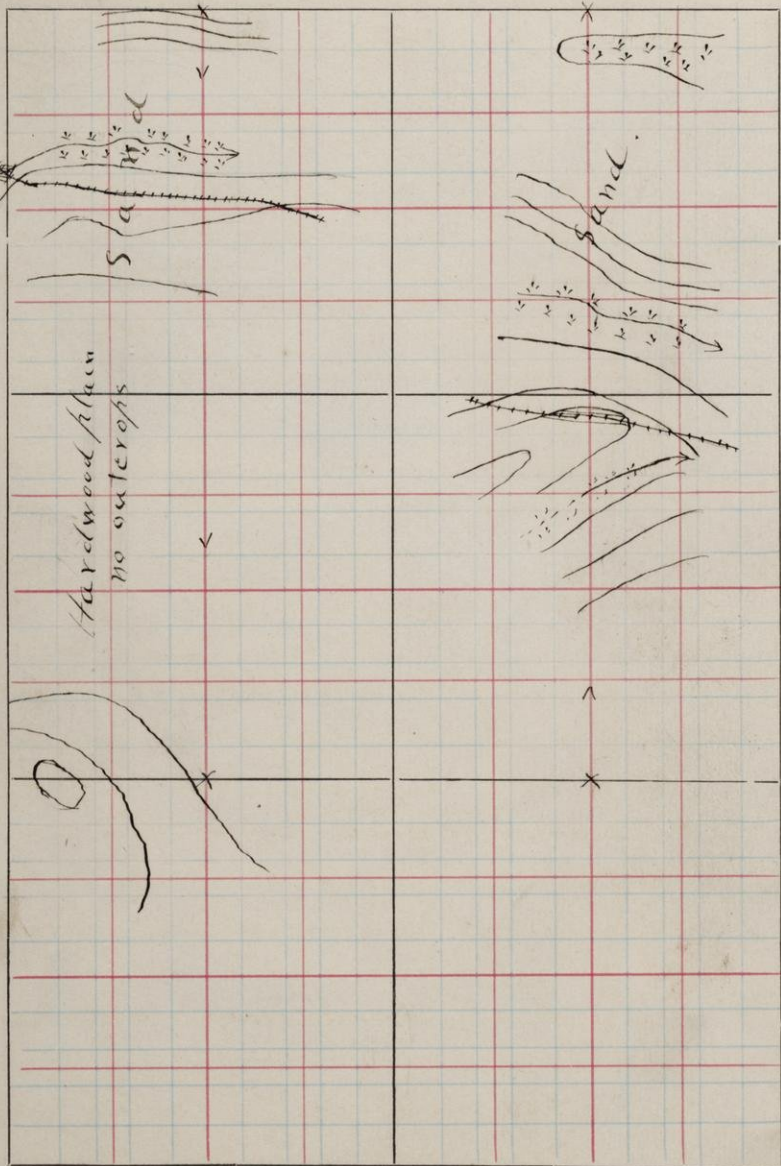
T. 48

R. 26

C of 9

E 1/4

SE
1/4



Hardwood plain
no outcrops

S 1/4 P

Cor

N1440 W 790 Marbles. Strike E Dip 80° S

N1393 W 260 Slaty limestone marbles

N1330 W 753 Cherty marbles

N1300 We begin to ascend hill which has been recently burned over and is covered with outcrops of ^{cherty} marbles & slates.

N1270 W 800 Bed of slates. Strike W 5° N Dip 78° S 5° W.

N1225 W 755 High cliff (30 ft) of marbles & slates. Strike E dip 85° S.

Sand plain now begins.

Map XXXVII

N 847 Little Cophin river.

N 780 G. S. S & A. R. R.

Continue over wooded but level ground with no outcrops.

Map XXXVIII

From N2000 W 750 from SE Cor. S-S-47-25-

245-38

N1820 W 760 Outcrop in stream bed of red slate with greenish layers in it. Seems to dip to N but outcrop is so small & imperfect that can't be sure of it.

245-37

N1800 W 780 Another small outcrop in stream bed of slate.

245-38

N1700 W 830 Very small outcrop of exactly same slates as 245-38

245-38

N1675 W 860 Small outcrop of same slates with a small quartzite ledge to N. Can't determine the relations.

XXXVIII

N 1/4 P

S.

5-

T.

47

R. 25-

Cor

NE
1/4

cofs

Carp River.

Carp
River

X 1/4 P

N1675 W 870 In stream bed, ledge shows quartzite interbedded with the slates, red + green.

Strike 5° S of W. Can't get dip on exposure.

N1640 W 855 Small ledge of ^{same kind of} slates + quartzite.

* Pass now through heavy timber over quite level country with here and there boulders of marble but saw no rock in place. About N1250 ground begins to slope to S and at N1000 W 625 we come to Corp River.

Now run E on $\frac{1}{4}$ line to E $\frac{1}{4}$ P. 55-47-25 in order to correct up. Then run N on W 250 over drift hills sloping to N to river.

Map XXXVII N1260 W 250 from SE Cr. 55-47-25 Corp River.

Here in river bed outcrop jagged ledges of marble + quartzite. We continue N and get no outcrops until we get into the NE $\frac{1}{4}$ of S 32-48-25. Outcropping country is well covered with timber and quite level except where cut by little Corp River at N 600 W 250 from SE Cr. S 32-48-25. Apparently all drift.

Map XXXVI

In NE $\frac{1}{4}$ S 32 outcrops of marble units begin, as we ascend hill, at N1225 W 128 Ledge of marble.

N1380 W 210 here begins outcrop of marble continuing to about N1480. Neither here

nor farther N on this run was I able
to get strike & dip of which I was sure.
I believe however from the way the ledges
all trend (E) that the strike is about
E.

N1525-W208 Purple limestone.

N1670 W150 Marble ledge 20 ft high forms
cliff on S side of hill. Seems to be a bed
on edge and striking E.

N1760 W125 Marble ledge.

N1895-W136 Bluish slates + yellowish slates
of marble series.

N1930 W 84 Marble ledge.

N2000 W125- Ledge of quartzite (of marble series?)

We have now crossed ridge which was
formed also to W by same marbles + slates
and now continue on to N over still hilly
ground. At

N160 W 175 find small ledge of quartzite and
on N side of hill find at

N180 W 170 quartzite + schistose yellowish
quartzite forming steep cliff about 20 ft high.

Descending now we pass test pit in
drift cross narrow marsh + ascend sand
slope to Old State Road to Morgantown at N440
N475 line comes to greenstone bluff extending
to E + W. This is mainly here. Schistose variety does
not show to S of it as it does farther W.

Map XXXV

24539

24444

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